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RESEARCH AND DEVELOPMENT

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FEBRUARY 1981

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PROJECT TITLE : ANALYTICAL INVESTIGATIONS
PERIOD COVERED : JANUARY 29 - FEBRUARY 24, 1981
WRITTEN BY : E. LECOULTRE

PRODUCT IDENTIFICATION BY GC/MS

Impurities in triacetin EASTMAN FJ 5912 were identified for QC (1). Major contamination is GPD. Minor impurities are the three isomers of glycerol-monoacetate-monopropionate, glycerol-1.2-diacetate-butanolate and dimethyl phthalate (2).

ORGANIC ACIDS BY GC

Work on the development of a gas chromatographic method for the analysis of organic mono-, di- and tri-carboxylic acids in fermented tobacco extracts has continued (3). Derivatization of an aqueous acid standard containing 50 mg .1 each of citric, lactic, malic, succinic, fumaric, tartaric, pyruvic and oxalic (internal standard) acid by treating the acid mixture with $\text{Ag}^+/\text{C}_2\text{H}_5\text{J}$ in pentane gives the ethyl esters in ca. 60% yield (Fig. 1).

Derivatization of acids in fermented tobacco extracts has been investigated. The esters are formed in satisfactory yields. All esters are separated with good sensitivity by GC on a 50m x 0.3 mm fused silica OV 1 column (Fig. 2). The optimum conditions for the determination of these acids in various fermented tobacco extracts are being established.

ROUTINE ANALYSES

- Phosphate and sulfate (22) for QC and Process Development
- Amino acids (30) for Biotechnology (Project SAVOURY).

REFERENCES

1. Memo from A. Widmer to Y. Genoud, January 19, 1981.
2. Memo from Y. Genoud to A. Widmer, February 19, 1981.
3. E. Lecoultré, PME Monthly Report, January 1981.

E. Lecoultré

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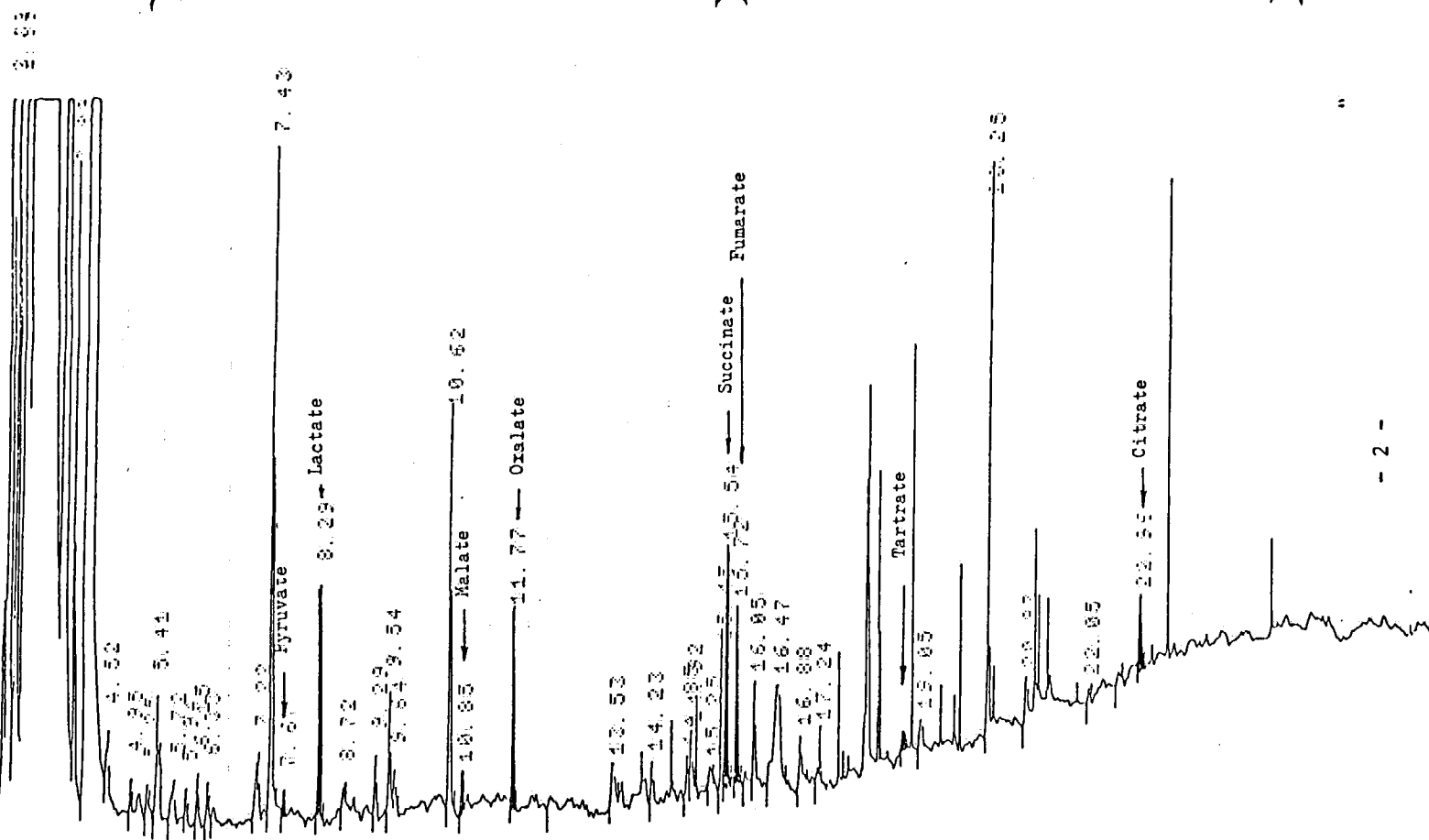


Fig. 1

GC² Separation of Ethyl Esters of Di- and Tri-Carboxylic Acids

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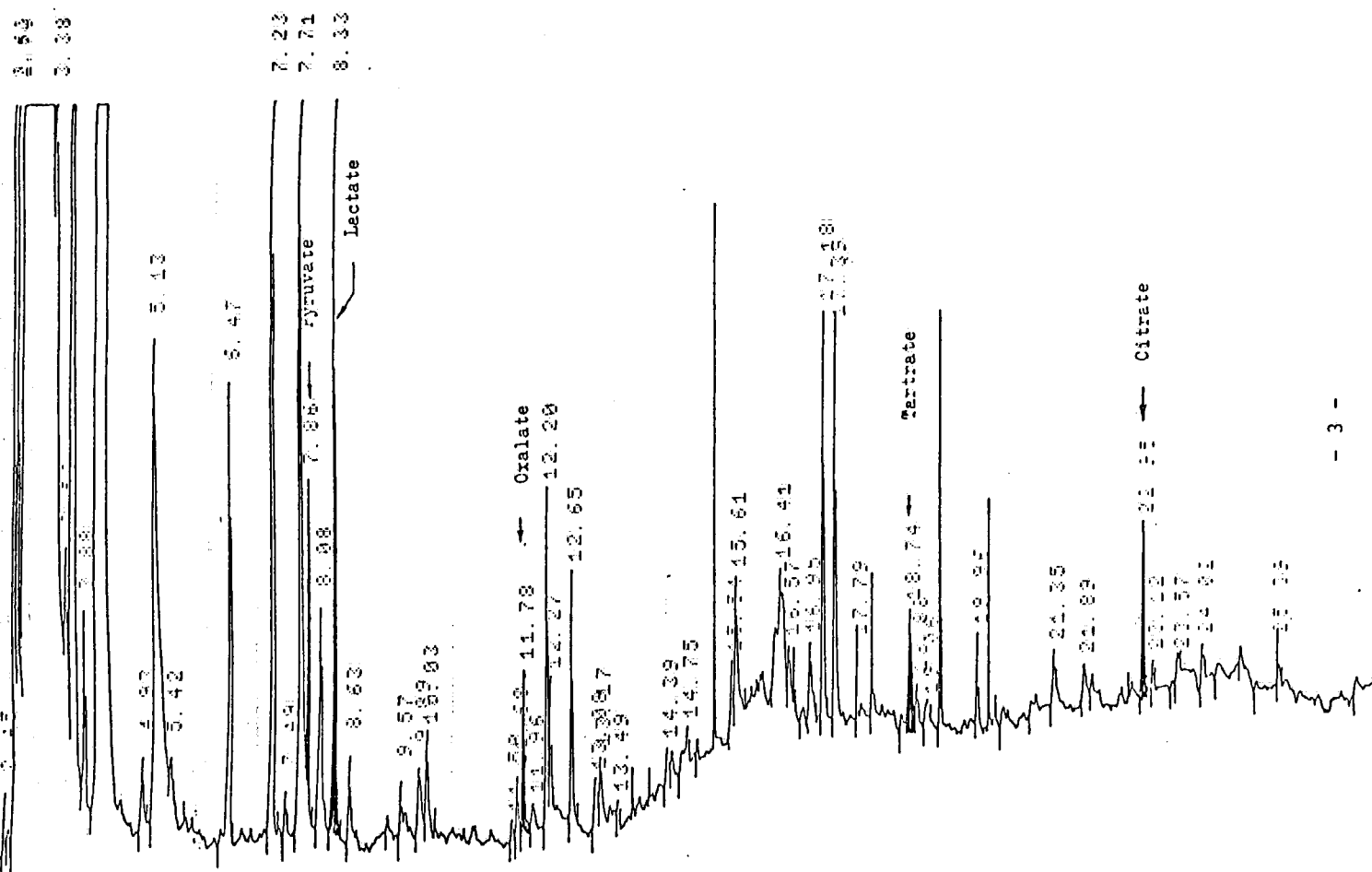


Fig. 2

GC² Separation of Ethyl Esters of Di- and Tri-Carboxylic Acids
in Fermented Tobacco Extract (Blend Type : ØS-B-TOT ; 7 hrs. after inoculation time)

PROJECT TITLE : ANALYTICAL INVESTIGATIONS
PERIOD COVERED : JANUARY 29 - FEBRUARY 23, 1981
WRITTEN BY : Y. GENOUD

TRIACETIN

A sample of triacetin, Eastman FJ 5912 submitted by QC for analysis (1), has been investigated by GC² and triacetin impurities identified by GC²/MS (2). Fig. 1 shows the chromatogram of the sample. The composition of FJ 5912 is given in Table 1. When filters treated with FJ 5912 are analysed the only impurity detected is GPD (3).

Table 1 : Composition of Triacetin Eastman FJ 5912

Peak No.	Compound	
1	Monoacetin	0.27
2	Triacetin	98.90
3	Glycerol-propionate-diacetate (GPD / isomer mixture)	0.46
4	Dimethyl phthalate	0.06
5	Glycerol-1, 2-diacetate-3-butanate	0.02
6	not identified	0.04
7	Glycerol-1-acetate-2-propionate	0.04
8	Glycerol-1-acetate-3-propionate	0.05
9	Glycerol-1-propionate-2-acetate	0.07
	Other impurities	0.09

TRIETHYLENEGLYCOL DIACETATE

By using the GC² method applied for triacetin analysis (4), triethylene glycol diacetate is presently analysed in filters of competitive brands in order to complete results

reflecting the situation on triacetin, given in the December 1980 Monthly Report, Table 1.

Fig. 2 shows the gas chromatographic separation of a synthetic mixture of triacetin and triethylene glycol diacetate (50/50) in ethanol with dimethyl phthalate as internal standard.

POLYETHYLENE GLYCOL

A gas chromatographic procedure for the quantitative determination of polyethylene glycol (Carbowax 400, 550, 600 and 750) after derivatisation, is presently under investigation.

FUSED SILICA CAPILLARY COLUMNS (FSC)

- For INBIFO, a 50m x 0.3mm i.d. FSC was prepared. The column is to be used for gas phase analysis.
- A 25m x 0.3mm i.d. FSC was prepared for ETL (GC²/MS).

REFERENCES

1. Memo from A. Widmer to Y. Genoud, January 19, 1981
2. E. Lecoultre, PME Monthly Report, February 1981.
3. Memo from Y. Genoud to A. Widmer, February 19, 1981.
4. Y. Genoud "The Analysis of Triacetin in Filter Material by Capillary GC", Analytical Method, February 1981.

Y. Genoud

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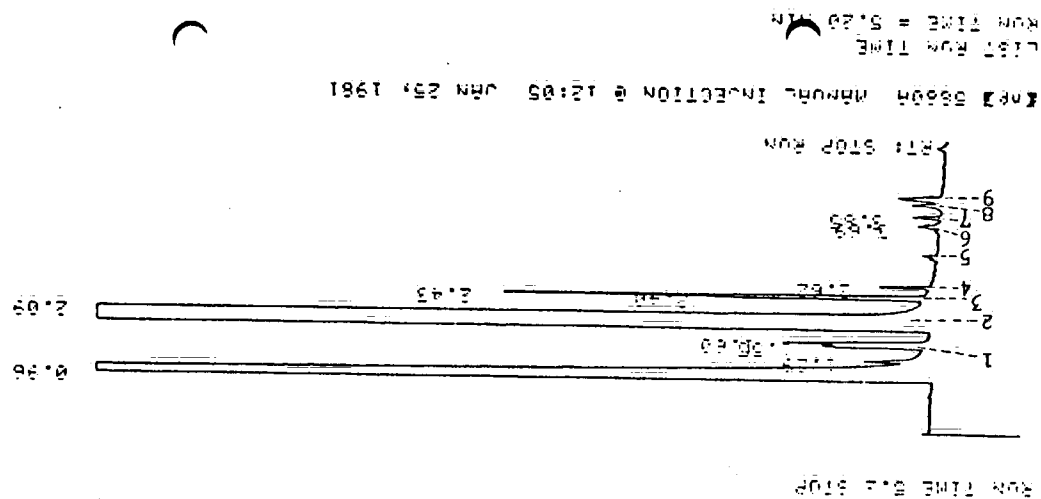
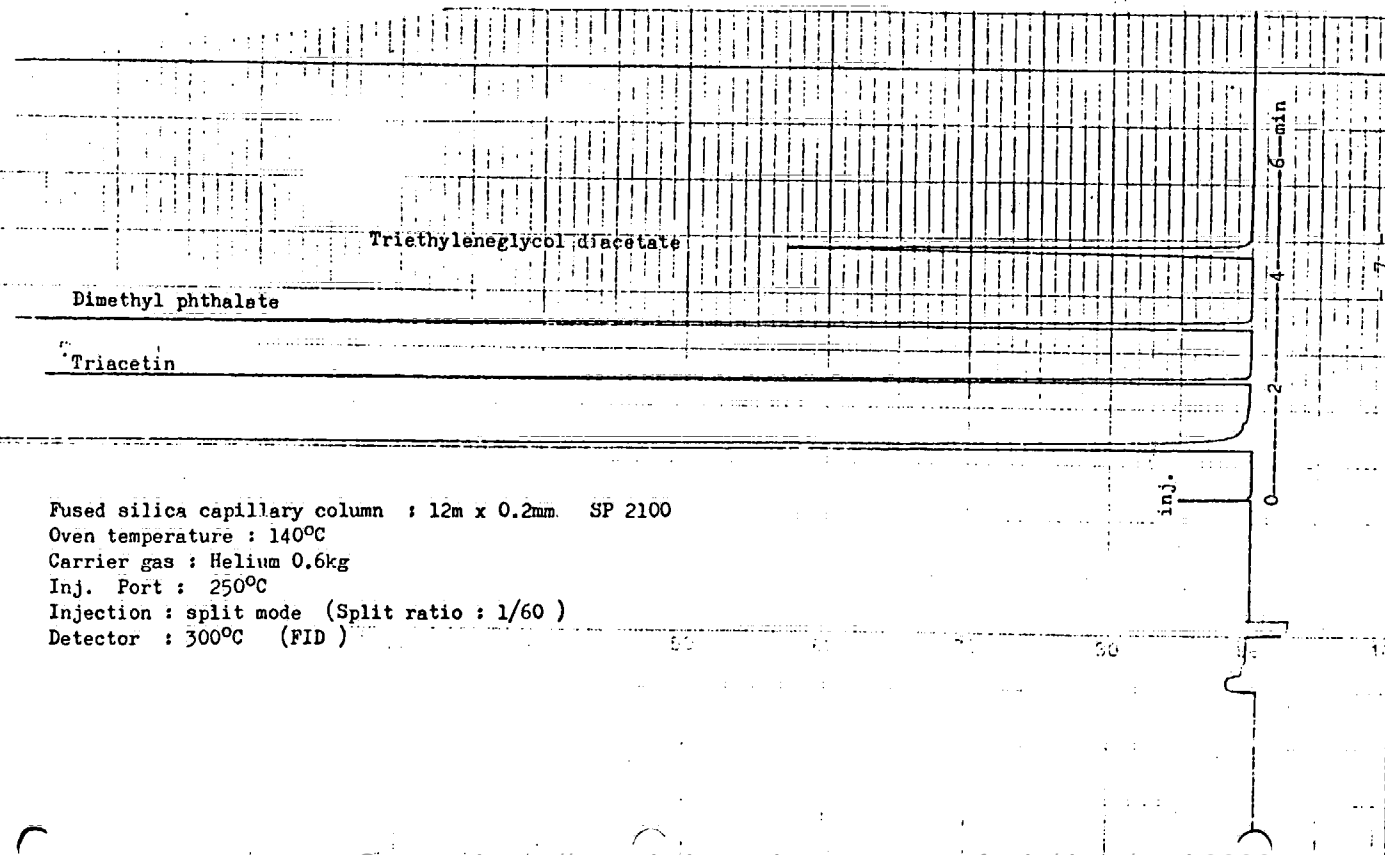


FIGURE 1: TRIACETIN FJ 5912

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FIGURE 2 : GC ANALYSIS OF PLASTICIZERS



PROJECT TITLE : ANALYTICAL INVESTIGATIONS
PERIOD COVERED : FEBRUARY 1981
WRITTEN BY : E. LECOULTRE, M. MURRAY AND J. PIADÉ

SACCHARIN

Several tipping papers and one reference tipping paper sample were analyzed for saccharin. The qualitative and quantitative analyses were performed by HPLC. The method involved acid (0.05N H_2SO_4) and diethyl ether extraction and determination on a $C8$ column (15 cm) with water, acetic acid, methanol (59/1/40) eluent.

All results were confirmed by GC²/MS after derivatization of saccharin to N-methyl saccharin (2) by M⁺ (197) and fragmentation. Results have been submitted to QC PME (3) (4).

At the request of QC PME a rather simple spot test for the presence of sodium saccharin on TP is being sought. The precipitation reaction between a dilute acidic silver nitrate solution and sodium saccharin seems promising. Work is continuing concerning the sensitivity and the selectivity of the method.

REFERENCES

1. Verbal request from F. Lopes to W. Fink, February 5, 1981.
2. R.J. Daun, J.A.O.A.C 54, 1140 - 1145 (1971).
3. Memos from E. Lecoultre to W. Fink, February 19 and 23, 1981.
4. Memo from W. Fink to F. Lopes, February 20, 1981.

E. Lecoultre, M. Murray and J. Piadé

PROJECT TITLE : AGRICULTURAL CHEMICALS
PERIOD COVERED : JANUARY / FEBRUARY 1981
WRITTEN BY : M. SPECK

ROUTINE ANALYSIS

Number of samples analysed for pesticide residues :

Organochlorines	60
Organophosphorus	60
Methamidophos	3
Dithiocarbamates	46
Maleic Hydrazide	47
Ridomil	11

M. Speck

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PROJECT TITLE : BIOTECHNOLOGY
PERIOD COVERED : FEBRUARY 1981
WRITTEN BY : D. SCHULTHESS

STRIPS EXTRACT DENITRATION (1)

Burley strips were extracted with water in a ratio of 1 : 10 strips to water at 80°C in the Rotocell extractor. The final extract was of the following composition : 733 ppm NO_3^- -N, 685 ppm NH_4^+ -N and 4.99% TS.

No problems were encountered in the denitration of the batch part. In accordance with the result found previously (2) all the NH_4^+ -N was eliminated from the tobacco extract before the NO_3^- -N was reduced.

Problems occurred during the continuous denitration at dilution rates higher than 0.1 hr^{-1} . The treated extract contained up to 300 ppm NO_3^- -N and 170 ppm NH_4^+ -N. Most probably this poor result was due to an insufficient aeration of our 1 litre flat blade fermenter.

CONTINUOUS NITRATE MONITORING (3)

The system used for continuous nitrate measurement described earlier (4) was tested with solutions of defined nitrate concentrations. A 10 ppm NO_3^- -N solution used as a standard was filled into the measurement chamber every 6 minutes and the electrode reading recorded. An average deviation of $\pm 0.02 \text{ ppm / hr}$ was found (Fig.1).

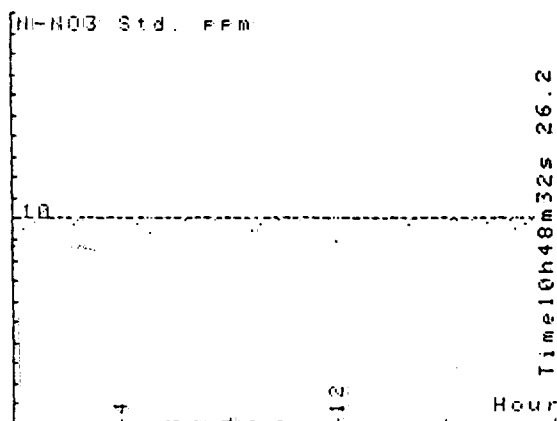


Fig. 1

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Any deviation from the standard value was corrected and the cumulative deviation was recorded on a second graph. For a period of 20 hours the total deviation was measured to be 0.6 ppm (Fig 2). It was found that in general the older the electrode was, the smaller the deviation was.

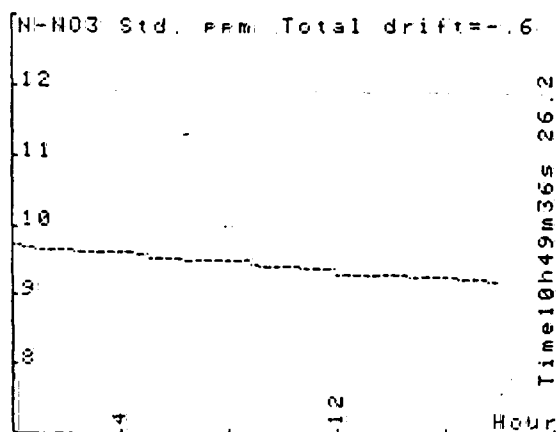


Fig. 2

Fig. 3 presents the nitrate values found in a tobacco extract containing 540 ppm NO_3^- -N. Prior to the measurement the extract was diluted 100 times. The average of the standard deviations was found to be - 2.9 ppm / hour.

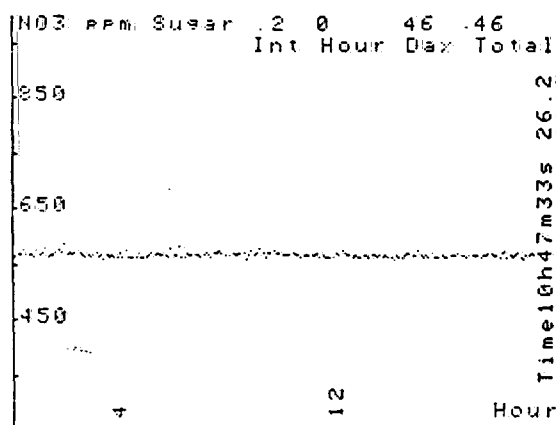


Fig. 3

The installation will be connected to our fermenters next month and the sugar addition regulated depending on the nitrate content of the extract.

REFERENCES

1. J. Berney - Notebook 800802, p. 35 - 37.
2. D. Schulthess - Monthly Report, Biotechnology, November 1980.
3. J. Berney - Notebook 800802, p. 40 - 44.
4. M. Thévoz - Monthly Report, Instrumentation and Process Automation.

D. Schulthess

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PROJECT TITLE : SALAMANDER-II
PERIOD COVERED : FEBRUARY 1981
WRITTEN BY : M. MURRAY

The objective of Project SALAMANDER-II is to develop zero ISH cigarettes of commercial quality. To this end the smoke components and their precursors in the filler, responsible for cysteine reactivity, should be identified.

EXPERIMENTAL

Preliminary HPTLC separations of ISH trap solutions and ISH solutions after cold trapping at -120° indicate broad similarity. Both solutions have cysteine, cystine and thiazolidine present. Some polar ninhydrin positive material, found in ambient temperature measurements is absent after cold trapping at -120° . This work should be repeated with fresh solutions and precautions to reduce on plate oxydation reactions.

EQUIPMENT

Requests for HPLC and ancillary equipment await budget approval.

Delivery of ventilated smoking machine hoods should take place at the end of February. The installation of the necessary ducting has been requested from the FTR workshop and the building's owner contacted for permission to make further apertures in the walls.

FUTURE PLANS

A smoking machine equipped with an electrostatic smoke trap will be used to test the hypothesis that charged species may be responsible for ISH activity.

M. Murray

PROJECT TITLE : LAUNDRYMAN
PERIOD COVERED : FEBRUARY 1981
WRITTEN BY : J.J. PIADÉ

PROJECT WORK

The objective of Project LAUNDRYMAN is to investigate the means of devising cigarettes of commercial quality with substantially reduced CO deliveries. A comprehensive bibliographic study has been initiated through published literature as well as internal reports, using for a part the Stairs system.

J.J. Piadé

PROJECT TITLE : SPOTLESS
PERIOD COVERED : FEBRUARY 1981
WRITTEN BY : F. MOSER

OBJECTIVE

The objective of the Project SPOTLESS is to produce cigarette prototypes which are denitrated, but otherwise correspond to commercial cigarettes.

The SPOTLESS cigarette prototypes serve to study the chemical composition of mainstream and sidestream smoke delivered by these denitrated cigarettes.

Two series of prototypes have been selected for the Project, one representing air-cured type cigarettes and the other American blend cigarettes. The whole Project SPOTLESS includes 16 different cigarette brands (7 for the air-cured type and 9 for the American blend type).

Air-cured Type (BRD)

This blend has the following composition :

A - MD / partie No. 832 Maryland (US + IT)	
+ Oriental + RL	82%
A - CH / partie No. 833 Swiss (strips)	12%
	<hr/>
	100%
	<hr/>

This blend is made according to the BRD version Atlantic 8331.

Blend Type (MLF)

This blend has the following composition :

B - FC / partie No. 834 Flue-cured (US + ET	
No. 2)	31.0%
B - BU / partie No. 835 Burley (US + subst.)	
+ RL	53.7%
B - OR / partie No. 836 Oriental	15.3%
	<hr/>
	100.0%
	<hr/>

This blend is made according to the MLF - version,
Atlantic 8222.

All tobaccos used for the Project SPOTLESS are without
casing and flavouring, humidified only with water.

Code System

The 16 prototype cigarettes are labelled according to
the following code system :

Ø (zero) : for the year 1980
S : for SALAMANDER II
A : for air cured type (red label)
B : for blend type (black label)
SPO : for denitration

1 ØS-A-TOT	} red number	1 ØS-B-TOT	} black number
2 ØS-A-TOT/SPO		2 ØS-B-TOT/SPO	
3 ØS-A-MD		3 ØS-B-FC	
4 ØS-A-CH		4 ØS-B-BU	
5 ØS-A-MD/SPO		5 ØS-B-OR	
6 ØS-A-CH/SPO		6 ØS-B-FC/SPO	
7 ØS-A/SPO/SPO		7 ØS-B-BU/SPO	
		8 ØS-B-OR/SPO	
		9 ØS-B/SPO/SPO/SPO	

Experimental Work

Although the tobaccos for the cigarettes will eventually
be submitted for a true denitration procedure, in which the
water solubles are not lost, it was decided, as a first step,
to use aqueous extraction to discard the extract and to
compensate only for the loss of potassium ions by adding
potassium nitrate.

The blend components for each type of cigarette were
extracted separately in cut rag form, as well as in the
ready blended form.

The extraction was carried out by the Process Development
Group in the Pilot Plant using a "Carrousel - Extractor"
from Ex-Technic, under the following conditions :

Water temperature : 80°C
Ratio tobacco / water : 1 : 15
Quantity : 27 Kg cut tobacco / ho
Extraction time : 40 minutes

Following the washing procedure, the tobacco was dried in the gas-heated dryer at 140°C (by rotation).

All cigarette prototypes were made according to the TLA specifications (and weight selected).

Analytical Programme

All 16 cigarette prototypes were submitted to the following analytical programme :

Filler

TLA (whole programme)
Additional analysis : Amino acids.

Smoke

TLA (whole programme)
Additional analysis : NO in SS
CO in SS
Nitrosamines in SS.

Analytical Data of the SPOTLESS Cigarettes : Tables

- Table 1 : Washing efficiency on N-NO₃ and potassium.
Table 2 : TLA values on aircured type.
Table 3 : TLA values on blend type.
Table 4 : Amino acids and protein nitrogen.
Table 5 : Nitrosamines in SPOTLESS cigarettes
Table 6 : Nitrogen monoxide and carbon monoxide in sidestream smoke of the SPOTLESS Cigarettes.

Remarks

The TLA results listed in Tables 2 and 3 require some comment. Comparison is, in certain cases, difficult because of non comparable cigarette RTD's. However, some of the results are surprising. In Table 2, the TPM value of the non-extracted control cigarette 1 ØS-A-TOT is 16.8, for the cigarette made with bulk extracted tobacco 2 ØS-A-TOT/SPO 16.1, and for the cigarette with individually extracted blend components 7 ØS-A/SPO/SPO 14.8. One might have expected a larger influence of nitrate removal on TPM. Perhaps the nitrate removal is compensated by the associated removal of other solubles. In the blend version, Table 3, there is a TPM reduction but, of course, the number of puffs is reduced.

Obviously a number of speculations spring to mind when pondering over these Tables, but they require some experimental follow-up (work in progress).

The second step of Project SPOTLESS is to apply NINO-type denitration processes to an analogous set of experimental cigarettes, in order to obtain zero nitrate products containing all water solubles and the original amount of potassium.

F. Moser

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TABLE I

PROJECT SPOTLESS : Washing - Efficiency on N - NO₃ and Potassium

Sample	% N - NO ₃	% Efficiency	% K	% Efficiency	% K after addition of Trl-K=Citrate
1. ØS-A-TOT	0.27	89.1	4.85	93.2	3.57
2. ØS-A-TOT/SPO	0.03		0.33		
3. ØS-A-MD	0.25	92	4.79	93.1	3.54
5. ØS-A-MD/SPO	0.02		0.33		
4. ØS-A-CH	0.30	93.3	4.65	93.8	3.85
6. ØS-A-CH/SPO	0.02		0.29		
1. ØS-B-TOT	0.35	95.7	3.75	91.5	3.06
2. ØS-B-TOT/SPO	0.015		0.32		
3. ØS-B-FC	0.03	76.7	3.08	80.8	2.80
6. ØS-B-FC/SPO	0.007		0.59		
4. ØS-B-BU	0.46	89.1	4.99	94.6	4.27
7. ØS-B-BU/SPO	0.05		0.27		
5. ØS-B-OR	0.03	93.3	2.23	85.2	1.62
8. ØS-B-OR/SPO	0.002		0.33		

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TABLE 2

PROJECT SPOTLESS : TLA - Values on Aircured Type

Filter	1 ØS-A-TOT	2 ØS-A-TOT/SPO	3 ØS-A-MD	5 ØS-A-MD/SPO	4 ØS-A-CH	6 ØS-A-CH/SPO	7 ØS-A/SPO/SPO
Cig. weight mg/Cig.	914	765	975	796	822	805	779
Tobacco weight mg/Cig.	680	541	755	574	599	582	559
RTD mm H ₂ O	112	110	128	113	102	127	108
Compressibility	2.77	2.43	2.58	2.66	2.98	2.08	2.56
Alcaloids tot. %	1.28	0	1.42	0.06	0.71	0	0
Reducing sugars %	1.6	0	1.90	0	0	0	0
Nitrate Nitrogen %	0.27	0	0.27	0	0.33	0	0
Ammonia Nitrogen %	0.45	0.09	0.34	0	0.74	0	0
Kjeldahl Nitrogen %	3.17	2.09	3.22	2.05	3.79	2.41	2.08
Total Nitrogen %	3.44	2.09	3.59	2.05	4.30	2.41	2.08
Protein Nitrogen %	2.50	2.00	2.73	2.04	3.11	2.41	2.08
HWS %	45.4	28.4	46.3	28.6	50.5	31.5	27.9
Smoke							
TPM mg/Cig.	16.8	16.1	23.4	15.6	21.9	15.3	14.8
SN mg/Cig.	0.88	0.12	1.26	0.13	0.62	0.13	0.10
Puff Number	6.6	6.8	8.3	7.0	7.2	7.4	7.1
CO mg/Cig.	22.6	18.5	21.8	17.3	21.5	17.7	17.2
NO mg/Cig.	0.39	0.04	0.39	0.03	0.36	0.04	0.03
HCN µg/Cig.	193	116	231	98	146	124	96
Ald. mg/Cig.	1.31	1.69	1.78	1.68	1.25	1.67	1.60
ISH %	46	41	47	42	47	27	37

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Tests	1. Weight mg/cg.	2. TD mm H ₂ O	3. Tar & Nicotine mg/cg.	4. Tar mg/cg.	5. Nicotine mg/cg.	6. Tar & Nicotine mg/cg.	7. Tar mg/cg.	8. Nicotine mg/cg.	9. Tar & Nicotine mg/cg.	10. Tar mg/cg.	11. Nicotine mg/cg.	12. Tar & Nicotine mg/cg.	13. Tar mg/cg.	14. Nicotine mg/cg.	15. H ₂ O %
1. Weight mg/cg.	986	755	653	410	729	678	993	900	1281	932	700	687	117	2.77	0.73
2. TD mm H ₂ O	113	113	110	110	110	110	110	110	110	110	110	110	110	110	110
3. Tar & Nicotine mg/cg.	986	755	653	410	729	678	993	900	1281	932	700	687	117	2.77	0.73
4. Tar mg/cg.	986	755	653	410	729	678	993	900	1281	932	700	687	117	2.77	0.73
5. Nicotine mg/cg.	986	755	653	410	729	678	993	900	1281	932	700	687	117	2.77	0.73
6. Tar & Nicotine mg/cg.	986	755	653	410	729	678	993	900	1281	932	700	687	117	2.77	0.73
7. Tar mg/cg.	986	755	653	410	729	678	993	900	1281	932	700	687	117	2.77	0.73
8. Nicotine mg/cg.	986	755	653	410	729	678	993	900	1281	932	700	687	117	2.77	0.73
9. Tar & Nicotine mg/cg.	986	755	653	410	729	678	993	900	1281	932	700	687	117	2.77	0.73
10. Tar mg/cg.	986	755	653	410	729	678	993	900	1281	932	700	687	117	2.77	0.73
11. Nicotine mg/cg.	986	755	653	410	729	678	993	900	1281	932	700	687	117	2.77	0.73
12. Tar & Nicotine mg/cg.	986	755	653	410	729	678	993	900	1281	932	700	687	117	2.77	0.73
13. Tar mg/cg.	986	755	653	410	729	678	993	900	1281	932	700	687	117	2.77	0.73
14. Nicotine mg/cg.	986	755	653	410	729	678	993	900	1281	932	700	687	117	2.77	0.73
15. H ₂ O %	986	755	653	410	729	678	993	900	1281	932	700	687	117	2.77	0.73

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TABLE 4

PROJECT SPOTLESS : Amino Acids ($\mu\text{Mol/g}$ Dry Tobacco) and Protein - Nitrogen (%)
in SPOTLESS Prototype Cigarettes

Sample	% Protein Nitrogen	Aspartic acid	Threonine	Serine	Glutamic acid	Proline	Glycine	Alanine	Valine	Methionine	Isoleucine	Leucine	Tyrosine	Phenylalanine	Histidine	Lysine	Arginine
1. \emptyset S-A-TOT	2.50	269	58	76	166	108	122	106	68	17	46	76	19	39	24	48	37
2. \emptyset S-A-TOT/SPO	2.00	150	37	49	111	88	76	69	38	-	24	48	13	26	15	33	22
3. \emptyset S-A-MD	2.73	216	46	62	133	86	100	84	47	-	38	62	14	23	16	37	28
5. \emptyset S-A-MD/SPO	2.04	108	56	68	92	-	106	89	-	-	46	76	16	24	13	40	29
4. \emptyset S-A-CH	3.11	316	47	67	146	64	106	88	49	-	38	64	16	38	33	54	32
6. \emptyset S-A-CH/SPO	2.41	145	75	88	130	-	148	127	-	-	64	107	21	31	21	84	46
7. \emptyset S-A/SPO/SPO	2.08	96	47	62	83	-	98	83	37	-	44	72	14	25	13	44	28
1. \emptyset S-B-TOT	2.58	99	48	65	88	46	98	83	61	-	47	76	20	33	17	39	31
2. \emptyset S-B-TOT/SPO	2.13	117	58	70	110	60	112	99	77	-	54	89	23	39	19	38	35
3. \emptyset S-B-FC	2.30	96	27	45	89	70	79	46	-	-	23	36	-	17	8	22	-
6. \emptyset S-B-FC/SPO	2.20	107	52	65	97	45	103	93	62	-	49	80	18	28	11	40	27
4. \emptyset S-B-BU	3.09	215	42	66	119	49	100	68	-	-	33	52	-	-	20	36	-
7. \emptyset S-B-BU/SPO	1.92	149	72	81	135	72	223	123	102	-	66	109	28	43	29	59	49
5. \emptyset S-B-OR	1.91	93	36	63	109	168	82	77	-	-	28	47	-	17	16	29	-
8. \emptyset S-B-OR/SPO	2.09	107	60	64	101	47	99	96	70	-	110	100	18	32	13	33	32
9. \emptyset S-B/SPO/SPO	1.98	97	49	61	90	-	98	86	-	-	47	88	-	24	11	43	24

0000144578

TABLE 5 PROJECT SPOTLESS : Nitrosamines in SPOTLESS Cigarettes (ng / Cigarette)

Sample	Sidestream - Smoke	
	DMN	NPY
1. ØS-A-TOT	267	58
2. ØS-A-TOT/SPO	50	7
7. ØS-A/SPO/SPO	75	8
3. ØS-A-MD	306	91
5. ØS-A-MD/SPO	54	8
4. ØS-A-CH	297	61
6. ØS-A-CH/SPO	47	9
1. ØS-B-TOT	222	75
2. ØS-B-TOT/SPO	72	13
9. ØS-B/SPO/SPO/SPO	88	12
3. ØS-B-FC	191	77
6. ØS-B-FC/SPO	128	15
4. ØS-B-BU	413	177
7. ØS-B-BU/SPO	94	18
5. ØS-B-OR	-*	-*
8. ØS-B-OR/SPO	84	16

* Impossible to smoke

0000144579

TABLE 6

PROJECT SPOTLESS : Nitrogen Monoxide and Carbon Monoxide in Sidestream-Smoke
of the Spotless Cigarettes

Sample	RTD mm H ₂ O	Puff Number	mg Nitrogen Monoxide / Cig. No.	mg Carbon Monoxide / Cig. Co.
1. ØS-A-TOT	118	6	1.1	35.2
2. ØS-A-TOT/SPO	112	7	0.5	37.3
7. ØS-A/SPO/SPO	108	7	0.7	38.2
3. ØS-A-MD	136	9	1.5	29.7
5. ØS-A-MD/SPO	115	7	0.6	29.0
4. ØS-A-CH	146	7	1.5	35.8
6. ØS-A-CH/SPO	113	6	0.6	27.9
1. ØS-B-TOT	116	7	1.7	16.4
2. ØS-B-TOT/SPO	112	7	1.1	20.5
9. ØS-B/SPO/SPO/SPO	102	7	1.0	18.7
3. ØS-B-FC	143	8	1.1	15.8
6. ØS-B-FC/SPO	100	7	0.8	16.3
4. ØS-B-BU	140	7	2.1	17.5
7. ØS-B-BU/SPO	137	7	0.8	17.6
5. ØS-B-OR	117	11	1.3	16.0
8. ØS-B-OR/SPO	103	6	1.0	14.4

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PROJECT TITLE : SAVOURY
PERIOD COVERED : FEBRUARY 1981
WRITTEN BY : P. GHISTE

THE EVALUATION OF FLAVOUR FORMULATIONS

During the last two months seven formulations of reaction flavours have been produced. They were evaluated during February.

As the flavour formulations were intended to add Burley character to RL sheet, the samples were sprayed onto RL sheet. Two types of controls were chosen for the evaluation of the subjectives: A high quality Burley tobacco and plain untreated RL sheet.

The comparison was carried out by placing the samples into a pyrolizer quartz tube, heating it in an oven at 300°C, allowing air to flow through at a slow rate of 200 ml/min.

The "smoke" leaving the tube was evaluated subjectively.

Three flavour formulations coded HCL - 34/1, HCL - 35/1 and HCL - 34/2 were found to have characteristics matching the subjectives of the Burley tobacco.

The flavour formulation coded HCL - 35/1 was submitted to a small smoking panel. All panel members preferred the trial cigarette to the control cigarettes. The other samples will be tested next month.

P. Ghiste

PROJECT TITLE : NITRATE REDUCTION BY CONTROLLED FERMENTATION
PERIOD COVERED : January 27th - February 23rd
WRITTEN BY : C. Ruf

1. TRIALS

NINO trial 67

NINO trial 67 has been running in the pilot plant since February 16th. The objective of this trial which is probably the last one of the project is to obtain denitrated European RL feedstock (Ref. 1). Both the denitrated extract and the extracted tobacco will be air freighted to Richmond where they will be recombined in the RL pilot plant (Ref. 2).

The NINO denitrated RL sheet produced in Richmond will be sent back to Neuchâtel and stored in the pilot plant to be used for further product evaluation.

NINO trial 67 will be run in the pilot plant until the end of February.

2. STRIP DENITRATION

We received a first report from PM USA on the comparative strip denitration trial carried out in October and November 1980 (Ref. 3). Cigarettes made with BUR strips, denitrated according to the three processes (anaerobic and aerobic fermentation, electrodialysis), did not appear to be different from normal Marlboro cigarettes, from an analytical point of view, except as regards NO delivery.

3. PILOT PLANT

See monthly report : "Pilot Plant Operations" by N. Lüthi, February 1981.

4. MISCELLANEOUS

M. Hofer, an engineer specialized in fermentation, joined the Process Development department on February 2nd. He will be trained to work on the LEAR project.

0000144581

5. REFERENCES

- Ref. 1 : "Essai NINO 67", N. Lüthi, February 13th, 1981
Ref. 2 : Letter from M. Häusermann to W. Gannon, February 12th, 1981
Ref. 3 : "Small scale Burley denitration trials", S. Müller, February 10th, 1981.

Ref

CLR/sde
March 2nd, 1981

0000144582

PROJECT TITLE : PILOT PLANT OPERATIONS
PERIOD COVERED : January 27th - February 24th, 1981
WRITTEN BY : N. Lüthi

1. EQUIPMENT

1.1. Extraction line for stems

On January 26th, a decision was taken not to carry out further trials with stems at the present time (Ref. 1). Therefore the extraction line for stems comprising equipment such as a V-shaped extractor, a feeder and a roller was dismantled and the rotocell extractor was installed in its place. The parts were cleaned, overhauled and sent to the FTR warehouse.

1.2. Rotocell extractor

This installation was put in place ready for use in the extraction of RL which is part of NINO trial 67 (Ref. 2). In addition, the outlet of the rotocell extractor was connected to the inlet of the dryer by means of two vibrating conveyors. This link enables continuous pre-drying of the extracted material. The final drying is still carried out batch by batch with the make-shift dryer.

The FTR engineering department has started work on the construction of the continuous feeding system for the rotocell extractor.

2. MISCELLANEOUS

About 1000 kg of a European RL blend were prepared for NINO trial 67 (Ref. 2).

3. REFERENCES

- Ref. 1 : "Minutes of meeting to discuss future denitration trials",
January 26th, 1981, C. Ruf
- Ref. 2 : Monthly report, February 1981, "Nitrate Reduction by
Controlled Fermentation", C. Ruf.

NIL/sde
March 2nd, 1981

U. Lüthi

PROJECT TITLE : RECONSTITUTED TOBACCO
PERIOD COVERED : January 29th - February 23rd, 1981
WRITTEN BY : P. Karbacher

MONIQUE/RCB

Roll coater, rubber roll

The rubber roll was changed on Monday, February 2nd. The rubber coating of this roll was replaced by Huber + Suhner, a firm specialized in rubber rolls. Up till now, no stripes have been observed in the sheet.

Monique/RCB trials

On Monday, February 16th, two trials were carried out with unsieved dust (Ref. 1). The composition of the dust was according to the percentage in which it was received from the different sources.

One trial was made with 40% of the dust mentioned above and 60% of the normal blend of milled FC stems and winnowers. The ratio of dust blend to stem blend was changed to 50% in the second trial.

Samples were taken from both sheets for different analyses (Ref. 2). It is also foreseen to prepare test cigarettes from these sheets.

On January 26th, MLF test cigarettes were produced with 50% Monique/RCB. These cigarettes were smoked by panels A and B and accepted Ref. 3 and 4). Since February 18th, the MLF blend composition has been changed from 3.3% to 5.0% Monique/RCB by reducing the US RCB by 1.7% (Ref. 5).

REFERENCES

- Ref. 1 : Essais Monique avec de la poussière non tamisée, P. Karbacher, February 6th, 1981
Ref. 2 : Analyses prévues pour les essais Monique/RCB 16 et 17, P. Karbacher, February 12th, 1981
Ref. 3 : Test de dégustation MLF 964, H. Böckle, January 27th, 1981
Ref. 4 : Test de dégustation MLF 964, A. Zevenhuizen, February 16th, 1981
Ref. 5 : Changement dans la recette MLF, H. Schmid, February 18th, 1981.

KPA/sde, March 2nd, 1981

PROJECT TITLE : CIGARETTE DEVELOPMENT 1
WRITTEN BY : Z. SINGER
PERIOD COVERED : January 29th - February 24th 1981

340 GAMMA

Objective

Blind product test in Germany.

Summary

The overtipped and the non-overtipped cigarettes were evaluated by Panel A and gave the following results : The cigarettes are up to expectation. No differences were found between the overtipped LORD EXTRA and the non-overtipped one. This was not the case in the previous evaluation. Checking of the cigarette paper porosity was requested. The analyses are under way.

335 LOLITA FLAVOUR DEVELOPMENT

Objective

To develop a full flavour cigarette having taste characteristics close to those of the L & M brands.

K = 10 mg

N = 0.8 mg

Summary

Based on the same cigarette specifications, trials were carried out with several AC solution. Two candidates, sprayed with E AC 31 and E AC 38, were selected and submitted to the German Marketing Department. Lately, six prototypes with CF flavours were evaluated. In general, these prototypes are of lower quality than the two previous candidates. For CF applications, a new blend should be used. Before establishing a new leaf formula, trials will be carried out with the current blend in which the homogenized part is replaced by stems.

365. BARBARA

Objective

K = 13 mg
N = 0.9 mg
Puff count : 9
Blind product test in Germany

Summary

The issue of this project, prototype 7 C 1, is a cigarette destined for German smokers of American-type blend cigarette. These cigarettes give flavour sensations which are close to those of the competitive CAMEL FILTER. The product test will be entirely prepared in PM Munich. For this reason, all the necessary information, such as cigarette and filter specifications, recipes of solutions and description of the processing, have been communicated to Munich.

233 COUNTRY PRODUCT TEST

Objective

To develop a diluted version of the MARLBORO Germany in order to reduce the CO delivery in the mainstream smoke.
K = 13 mg CO reduction : 20 to 25 %
N = 0.8 mg

Summary

The diluted prototype No 31 P, which was developed on the basis of the current diluted version MLK 12, was accepted for the product test. These two cigarettes differ in blend and cigarette paper. The prototype has citrate type Pela-200 MNC cigarette paper instead of the acetate type Pela-200 MN used in MLK 12.

Three alternatives of MARLBORO will be introduced in this test : Current undiluted MARLBORO MLK 21

Current diluted MARLBORO MLK 12

Diluted prototype No 31 P (for the test : coded 31 T 1)

Description of samples and results

The samples of the product test cigarettes were analysed in our laboratories and taste evaluated by Panel A during week 8.

The following problems were encountered :

MLK 21 was found too harsh in comparison with the standard production, probably because of the low moisture content (11.5 % instead of the specified 12.5 %).

Prototype 31 T 1 : The SN figures of our laboratory and those of PM Munich are too high : Average : 1.0 instead of 0.8 mg/cig.

For this reason, the test cigarettes could not be released for the consumer test.

As far as the organoleptic characteristics are concerned, the cigarette is up to expectations.

Follow-up

In view of these facts, the product test cannot be released. The MLK 21 must be repeated with a specified moisture content. The analyses of prototype 31 T 1 will be carried out on a more representative series of samples.

402 PITCH 3

Objective

TAR : 3 mg/cig.

SN : 0.3 mg/cig.

Format : 7.95 / 25 / 84.4

Taste direction : GAMMA

Summary

Prototypes Nos 3 P, 8 P and 9 P, developed on the basis of the PHILIP MORRIS SUPER LIGHTS, were taste evaluated and compared with PMS cigarettes. None of these prototypes were of the quality of the existing product.

In Panel A's opinion, the GAMMA 3 mg need to be further developed as regards blend, flavour and construction.

Z. Singer
Z. Singer

02/27/1981/ZDS/cap

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0000144587

PROJECT TITLE : CIGARETTE DEVELOPMENT 2
 WRITTEN BY : A. FRATTOLILLO
 PERIOD COVERED : January 28th - February 25th 1981

290 HILTON UK

Objective

To confirm the analytical values obtained with cigarette prototypes produced previously in order that the panel may compare their organoleptic qualities with these of the SILK-CUT cigarettes.

Description of samples and results

Four cigarette prototypes (analytically within the objective and accepted by Panel A) were repeated using freshly laid-down tobacco blends : i.e.

Prototype No 41 C (re. : MERIT Boost program, February 1980)
 Blend No GB0229001R02, batch No 961

Prototype No 74 C1 Blend No GB1029001N02, batch No 962

Prototype No 83 C1 Blend No GB1029001N02, batch No 962

Prototype No 85 C1 Blend No GB1029001N02, batch No 962

All the above prototypes were based on the same cigarette design and construction materials as the previous ones.

The results of these trials are shown in the table below, where the numbers in parentheses indicate the code of the previous prototypes and their related values.

Prototype No	41C (41)	74C1 (74C)	83C1 (83P)	85C1 (85P)
Cig. tot. wt.	1133(1049)	990 (982)	1018(1010)	1010(1013)
TAR	9.0 (9.3)	8.2 (8.9)	7.3 (8.7)	9.04(0.95)
SN	0.82(0.79)	0.90(1.19)	0.83(1.12)	0.86(0.95)
CO	10.7(11.1)	9.3 (8.3)	7.5 (8.2)	16.7(12.9)
NO	0.12(0.15)	0.04(0.04)	0.04(0.03)	0.06(0.05)
Puff count	8.7 (8.3)	8.6 (8.7)	8.7 (8.8)	7.5 (7.7)

0000144588

In addition, the following brands of cigarettes were received by FTR. They were overtipped, packed and then sent back to Feltham to be used as the UK smoker panel product ; i.e.

<u>Brand name</u>	<u>Number of cigarettes</u>
"555"	6'000
Chesterfield	6'000
B & H	12'000
Vanguard	6'000
Silk-Cut	12'000
MLK (Silvertown)	18'000

In addition, 3'000 HLP-85, coded S 37, were dispatched to Silvertown for the UK TENNIS consumer test ; i.e. S 37 vs G 61 (23 P).

Comments

The analytical values obtained with prototypes Nos 41 C and 85 C1 are within the range of the previous ones, whereas these of prototypes Nos 74 C1 and 83 C1 are well out of the acceptability limits.

This was seen once again that such variations are probably due to badly blended tobacco.

At this stage, we should keep in mind that the use of a poor blending technique (for cut-rag) will always lessen the degree of dispersion of the tobacco strands of the various tobacco grades used in the making of the final blend. To avoid or reduce such variations into reasonable limits, the search for an improved blending technique appears to be the most realistic approach !

Prototypes Nos 74 C1 and 83 C1 will again be repeated.


A. Frattolillo

02/27/1981/ANF/cap

PROJECT TITLE : CIGARETTE DEVELOPMENT 3
WRITTEN BY : P. NAGEL
PERIOD COVERED : January 28th - February 24th 1981

266 HARVARD

Objective

To improve the taste quality of MURATTI 2000.
To decrease the smoke delivery to 6 mg TAR.

Summary

No improvement was achieved by using a double filter as far as taste quality was concerned (especially in the first puffs). Therefore, on April 1980, the Swiss Marketing department agreed to use a triple filter for this product. For this reason, the development of a triple filter maker became indispensable and thus the launching date of the cigarette had to be postponed.

Description of samples and results

Pending the availability of the triple filter maker (April-October 1980), several trials were carried out on three different blends with different double filter combinations and cigarette papers with the aim to select the most suitable blend and to obtain smoke figures within the objective. The standard MAB tipping paper was retained. Among the prototypes, No 108 P was within the target 6 mg TAR and gave enough taste impact and satisfaction. In general, it was better than the current MURATTI 2000. This prototype was retained for application of triple filter. The following combinations Plug 1 - Plug 3 - cigarette papers were tested :

Plug 3 Plug 1	2.5 Y / 48	2.5 Y / 55	2.5 Y / 75
2.5 Y / 48	110 - 6 EP WP 60	E. 753 Pela 150 Pela 130 Pela 54	-----
3.3 Y / 55	-----	-----	WP 60 Pela 54
5.0 Y / 54	110 - 6 EP	110 - 6 EP WP 60 Pela 150 Pela 130	-----
5.0 I / 46	110 - 6 EP	-----	WP 60

- Remarks : 1) The middle piece (plug 2) was not changed (5.0 Y / 40'000 black tow, N.A. charcoal, FU-POV 100 plug wrap).
- 2) The cigarette paper porosity had to be adjusted according to the efficiency of the filter combination used in order to improve the taste impact of the first puffs.

However, from these trials, only prototype 130 P showed any real improvement. In order to keep the "AROMA PLUS" term in the advertising, trials were made with SFC-153 and FAMA-AC (MURATTI 2000 flavour ingredients) in different concentrations. Prototype 131 P with E AC 52 has been accepted for the product test.

Characteristics of the prototypes

Prototype No	108 P	130 P / 131 P
Blend No	CH 0427103N02	
ETNA %	27	27
Format mm	7.95 / 25 / 84	-----
Cigarette paper	110-6 EP	Pela 54
Tipping paper	EP - 24/120	
Filter : Type	Double	Triple
Plug 1	2.5Y/48	2.5Y/48
Plug 2	5.0Y/40	5.0Y/40
Plug 3	-----	2.5Y/55
Additive	Charcoal N.A.	Charcoal N.A.
RTD mm WG	87	104
Dilution %	25 (PME)	45 (US)
Cigarette RTD mm WG	103	102
Total alkaloids %	1.59	1.60
Nitrate-N %	0.20	0.22
Reducing sugars %	6.5	7.1
TAR mg/cig.	6.0	5.7
SN mg/cig.	0.54	0.51
CO mg/cig.	6.0	7.7
NO mg/cig.	0.10	0.12
Puff count	7.4	7.3

Product test

Prototype 131 P is now being product tested against the current MURATTI 2000.

In accordance with the first request of the Marketing Research Department, both test cigarettes were produced with the white tipping paper. It was finally decided to use the MERIT type tipping paper as it is more similar to the existing one.

The results of the test are expected for the end of March.

399 TEXAS

Objective

To develop an ultra low tar cigarette of the air-cured type with the following characteristics :

TAR : 3 mg/cig.
SN : 0.3 mg/cig.
CO < 5 mg/cig.
NO < 0.1 mg/cig.
Puff count : 7
Format : 7.95 / 25 / 79.4

Summary

Prototypes Nos 10 P and 12 P have been accepted by the Marketing Department for the product test. These are currently tested against BRUNETTE NO 3 (BRT). At the same time, the two prototypes are tested one against the other in order to determine which prototype will be preferred by the smoker. The results of the test are expected for the end of March.

364 CALIFORNIA

Objective

To reduce the smoke delivery of MURATTI AMBASSADOR (MAA, MAK) to 10 mg TAR.

Summary

In order to achieve the objective, trials were carried out on the new blend (18 % of expanded tobacco) and with standard raw materials of MAA 09 and MAK 08.

Description of samples and results - MAA

Prototypes Nos 3 P and 6 P are within the target values as far as taste is concerned. Both have a MURATTI-type taste, but preference is given to No 6 P.

0000144593

Prototype No	MAA 09	3 P	6 P
Blend	42 MAA	CH0336401N02	-----
ET %	0	18	18
Format mm	7.95/18/79.4	-----	7.95/20/79.4
Filter/cig. paper	MAA	MAA	MAK
Tipping paper	4xM0.15.4.5	6xM0.15.4.5	4xM0.15.4.5
Tob. weight at 12 % MC mg/cig.	816	731	700
TAR mg/cig.	11.7	9.8	10.4
SN mg/cig.	0.86	0.76	0.83
CO mg/cig.	12.8	10.5	12.0
NO mg/cig.	0.16	0.14	0.15
Puff count	10	9.4	8.3

Both prototypes were product tested against the current MAA in autumn 1980 and the following results were obtained :

No 3 P : The current MURATTI AMBASSADOR was found to have a better taste and to be stronger.

No 6 P was also preferred by MURATTI AMBASSADOR smokers to the current product.

At the same time, prototype 6 P was tested against the current MAA by Panel D and similar results as those obtained of the product test were obtained.

Description of samples and results - MAK

Prototype 6 P was produced in king size format (7.95/20/84.4). This cigarette was analysed according to the PME method (Butt length = filter length + 8 mm).

The analytical values found were higher by 1.5 mg than the target. For reasons of standardisation, the construction of the cigarette was not altered. The only way of decreasing the figures was to decrease the smoked length by using a wider tipping paper. The analyses were carried out with different butt lengths in order to determine the smoked length which would yield 10 mg TAR.

The MAK prototype 6 P with 27 mm tipping paper is within the objective.

P. Nagel
P. Nagel

02/27/1981/PHN/cap

0000144594

PROJECT TITLE : CIGARETTE DEVELOPMENT 4
WRITTEN BY : R. TOIMIL
PERIOD COVERED : January 5th - February 26th 1981

404 ALFA

Objective

To re-engineer the MERCEDES KS brand in order to obtain the following smoke yield :

DPM : \leq 16 mg

SN : \leq 1 mg

Summary

In December 1978, the blend of the MEK01 cigarette was changed and brought about an increase in smoke yield. In view of the current results, Marketing Department requested development work to be carried out on this brand.

Description of samples and results

Seven prototypes were produced with three filters (two of which were new) and a new blend.

<u>Filter code</u>		34.5553-D	34.5557-D
Total length	mm	120 (20)	120 (20)
Plug 1 : length	mm	7.5	7.5
Plug 2 : length	mm	12.5	12.5
Plug 1 : tow		2.5/46'000 Y	2.5/48'000 Y
Plug 2 : tow		4.0/45'000 Y	3.3/30'000 Y
RTD	mm WG	546	419
Total weight	mg/cig.	1410	1240
Additive : type		Silicagel	Silicagel
Additive : weight	mg/cig	60	60

Blend : IT0340401N02

Flue cured (%)	26.8
Burley (%)	10.2
Maryland (%)	4.0
Orient (%)	32.0
Added stems (%)	18.5
Reconstituted (%)	1.0
Expanded stems (%)	7.5

Prototype 7 P, produced with the current MEKNC filter and the ME001 tobacco blend, gave the following analytical results :

	7 P	C.I.R.
DPM (mg/cig.)	16.7	18.4
SN (mg/cig.)	0.99	1.02
Puff count	9.1	9.5

These analytical results will be confirmed before any definite conclusions are drawn.

Prototypes 4 P and 5 P were the most interesting products of the series.

Prototype 4 P was produced using the IT0340401N02 tobacco blend and the 34.5557-D filter.

Prototype 5 P was produced with the ME001 tobacco blend and the same filter as that used in prototype 4 P.

The analytical results obtained were as follows :

Prototype	4 P	5 P
DPM (mg/cig.)	14.1	14.3
SN (mg/cig.)	0.84	0.83
Puff count	9.0	8.8

Although DPM and SN figures were lower than those of prototype 7 P, these two cigarettes gave a good taste satisfaction.

They will be evaluated by Panel A.

301 HILTON 100'S

Objective

To extend the HILTON family with a 100 mm cigarette having the following smoke yield :

DPM : 9 mg
SN : 0.7 mg

Summary

The first prototype produced in this project, gave analytical results which were too high.

Therefore, two new prototypes were produced in PMG Munich using a more porous plug wrap (100 K) and Z4/100 and 6 M. 0.15 . 4.5 tipping papers.

Comments

The adaptation of the MERIT brand blend (reduction of analytical values), led to analytical results which were even lower than what was expected.
The FU-POV 40 L should be kept for provisional specifications.

380 GAMMA 100'S

Objective

To extend the GAMMA family with a 100 mm cigarette having the following smoke yield :

DPM : ~ 7 mg
SN : ~ 0.6 mg

Description of samples and results

Prototypes 1 P and 2 P of different weights were produced and taste evaluated. Panel A chose prototype 2 P, which has a total weight of 1150 mg/cig., to be presented to the Marketing Department.

376 FANGIO

Objective

To produce the VIRGINIA SLIMS LIGHTS brand in Europe.

Comments

Instructions were sent to PM Holland concerning the production of the first prototypes.
Flavours were ordered from PM USA.
The USA flavours will be injected into the first cigarettes in the laboratory.

389 EXIT

Objective

To reproduce the dilution system of the BARCLAY cigarette.

Description of samples and results

Filtrona filters having CPF type grooves were tested in the MLF and MLK brands.

Prototypes produced with MLK specifications and a micro-mechanically perforated tipping paper gave 55 % of US dilution and 8.6 mg of DPM. Before drawing conclusions on the CPF filter, prototypes should be tested on the human smoking simulator machine.

381 ETON

Objective

To evaluate the tobacco expanded in Onnens.

Description of samples and results

The FC tobacco expanded in Onnens was evaluated on the MLZ and FLI cigarettes and the Swiss tobacco on the FLL and BRT cigarettes.

As far as analytical results are concerned, no significant differences were detected as regards these evaluations. However, it could be interesting to check the future production in order to see whether any differences are found.



R. Toimil

02/27/1981/RAT/cap

0000144598

PROJECT TITLE : CIGARETTE DEVELOPMENT 5
WRITTEN BY : J.-H. DU BOIS
PERIOD COVERED : January 24th - February 24th 1981

PROJECT PLANNING

Objective

- To establish a detailed study of our 1980 activities concerning "Marketing/Operations" and R & D projects.
- To study a system of planification which would enable each person concerned to know which things have to be done and when.

Results

1980 Can be summarized as follows :

Active projects	65
Prototypes produced	721
Filters produced	117
Smoke analyses	837
Blends produced	80
Product tests : FTR	19
Panel D	4
Other affiliates	7

Comments

The figure of the prototypes produced (721) includes only those made in FTR and not those produced by other affiliates, whereas the figure of the smoke analyses (837) includes prototypes produced by other affiliates.

Follow-up

As the first part of the objective has been attained, the second part, which has already been started, will now have to be completed.

J. DuBois

J.-H. Du Bois

02/27/1981/JHD/cap

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0000144599

PROJECT TITLE : ADDITIVE AND FLAVOUR DEVELOPMENT
WRITTEN BY : J.-P. FATTON
PERIOD COVERED : January 25th - February 25th, 1981

266 / 271 HARVARD / COLORADO

Objective

Development and application of aftercutting solutions for Muratti type brands.

Summary

Among the flavours submitted to Panel A, EAC 52 was chosen to be presented to Marketing. This version is currently in a market test.

335 LOLITA

Objective

Development and application of new flavouring ingredients to improve the taste of the existing brand.

Summary

The best prototypes were made by using casing formulas developed in Richmond and aftercutting solutions developed in Neuchâtel (EAC 31 at 70% and EAC 38 at 70%).

Description

In order to obtain a taste improvement of EAC 38, it was applied at 70% and different trials were made by adding 30 ppm and 60 ppm of Coumarine, dihydrocoumarine and Coumarine substitute.

In parallel some tobacco batches were sprayed with a mixture of EAC 38 at 70% and natural tonka-bean extract, Deer tongue extract, wood-ruff tincture and melilot tincture.

The prototypes are still under evaluation.

0000144600

PROJECT TITLE : TOBACCO STUDIES
WRITTEN BY : L.JOSEPH
PERIOD COVERED : January 28th - February 24th, 1981

1. TOBACCO LOT ANALYSES

Introduction of Inputs on EDP

Partial analytical results of eighteen lots were introduced in the PME Analytical Data List.

Lots under Evaluation

Twenty four lots.

Lots available, but not yet analysed

One lot.

2. ASSISTANCE TO OTHER PROJECTS

RCB (1)

Objective

Improvement of the quality of the RCB sheet.

Overview

Two trials were made with a different quality of dust: one at a 40% dust level like the standard production and one at 50%. The analyses are under way.

Savoury

Objective

Creation of a Burley flavour from Ninomass.

0000144601

Overview

We received two samples of cut rag: both use the spotless ØS-B-TOT blend. One is the standard, the other is flavoured. The analyses are under way.

Reference Cigarette

Four reference cigarettes were made this month: two with Gamma blends and two with Alfa blends.

3. SPECIAL PROBLEMS

Contamination of Tobacco by Powder

We have received from Mr. Ganniclift three samples of different powders found on the outside of boxes of FC tobacco, Lot No. 1653 from India. The samples have been given to the Research Laboratories for analysis. The black powder seems to be coal, the brown powder sand and the white powder PVC. The contamination could have occurred during storage before shipment or been caused by dirty containers during transportation.

MLK-DB

We have received ten samples of cut tobacco from two batches of MLK-DB (five samples from each batch). The tobacco analyses of TA, RS, N-NO₃, N-NH₃ were made in order to see the regularity of the blending in the primary process.

The results of the analyses are consistent and the variations are within the limit of the variations of the analyses. However, we observe a slight difference between the mean of the TA level of the two batches.

334 ATLANTIC

Objective

Evaluation of a new blend concept for 1983.

Summary

For economical reasons, the old ATLANTIC blend concept is being reviewed. At this time, we are interested in seeing the influence on the blend of a partial replacement of RL by IS.

0000144602

Overview

Five different blends were processed:

- Old blend concept: 13% of ET-FC without any stems
- 5% of IS ex München
- 7% of IS ex München
- 5% of IS ex FTR
- 7% of IS ex FTR.

In the beginning, we wanted to add the stem on the ESTHER add-back. A trial was made in order to obtain some FTR cut stems at 12 to 13% moisture content, but too much breakage occurred during the pneumatic transport. As the IS ex München were sent at 19% m.c., we decided to use the normal stem line of the primary.

Cigarettes were made and the analyses are under way.

Reference

- (1) Note from Mr. Karbacher to Miss Joseph - February 18th, 1981.

PROJECT TITLE : ETNA Evaluation

WRITTEN BY : B. Krasna

PERIOD COVERED : February 1981

Stock Situation of Expanded Tobaccos

On the list:	ET-FC	:	41600 kg
	ET-CH	:	800 kg
	ET-BU	:	-
	FC ex USA	:	8164 kg
	BUR ex USA	:	6997 kg
In Onnens:	ET-FC	:	61750 kg
	ET-CH	:	9800 kg
	ET-BU	:	2811 kg

The difference between the official stock situation and the product stored in Onnens is caused by the delay in the quality control results: it takes about 10 days after production before the tobacco is released for transfer.

Cigarettes

FLL and BRT cigarettes are being produced with ET-CH at the same specified weight as the cigarettes that were produced with Swiss tobacco expanded in Richmond.

MLZ and FLI cigarettes will also be produced at the specified weight, as soon as the FC tobacco expanded in Richmond is used up.

A gradual introduction of ET-FC was started in MLF (2.2%), BSB (2.2%), PMM (2.2%) and MER (3.0%), and ET-CH in NPF (2.2%) cigarettes. The distribution of ET-FC in MLF cigarettes showed an average of $\bar{x} = 2.58$ with a standard deviation of $s = 0.44$. An explanation of the higher average found (2.58% instead of 2.2%) might be that some expanded stems were counted as expanded tobacco. For a 95% confidence level we need 2s, which means that 95% of the cigarettes made had an ETNA level between 1.70% and 3.46%, which is very good. A comparison of this new MLF and the production averages of November and December shows a slightly better cigarette compressibility for the new blend (Ref. 1).

ETNA Process

Optimalisation trials are being carried out on the equipment, and during the next few months a constant FC blend will be used, i.e. no lots will be replaced during this time.

Leaf Trials

A list of 15 grades and 3 origins of tobaccos has been established (Ref. 2).

Three thousand kilos of 6 grades will be expanded to find the optimal conditions, and 1000 kg of similar grades will be expanded at the best condition (Ref. 3). The total tobacco volume of the trials should be around 80 tons.

A programme of the utilisation of the expanded grades is being set up.

B. Krasna

B. Krasna

References

- Ref. 1: Memo from G. Lauper to A. Zevenhuizen, February 11th, 1981 - "Introduction ETNA dans mélanges MLF"
- Ref. 2: Memo from M. Hansen to G. Karandjoulis, January 20th, 1981 "Project Library"
- Ref. 3: Memo from M. Hansen to G. Karandjoulis, February 13th, 1981 "Project Library".

BEK/nod 27.2.1981

0000144605

PROJECT TITLE : Cigarette and Smoke Analysis
Period covered : February 1 - 27, 1981
Report written by : F. Senehi

PRODUCT REPORTS

Product Reports were written on the following new or modified brands:

<u>Brand</u>	<u>Manufacturer</u>	<u>Country of Sale</u>
Barclay 84/F (New brand)	BAT	United Kingdom
Berkeley Extra Mild 84/F (New brand)	Gallaher	United Kingdom
State Express 555 Special Mild 84/F (Line extension)	BAT	United Kingdom

SMOKING PANEL

The following versions were mail-out tested:

1. Brand : Muratti Ambassador

G 51 = Standard

J 14 = Trial / 100% Carbowax was replaced by
90% Carbowax and 10% Triacetine

According to the statistical evaluation, there was no significant difference between the two cigarettes.

2. Brand : Brunette DF

F 58 = Standard

M 97 = Trial / Project Maryland 284 - Prototype 140 T -
New Tobacco Recipe

According to the statistical evaluation, there was no significant difference between the two cigarettes.

QC FINISHED PRODUCTS

F. Senehi

F. Senehi

SEF/nod 9.3.1981

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0000144606

PROJECT TITLE : QA Analytical Services
Period Covered : January 23 to February 23, 1981
Report Written by : A. Widmer

TRIALS WITH NEW SUPPLIES OF TOBACCO INGREDIENTS

- Invert Sugar (for PM production under licence in Italy)
Ref. 1

The sample "IDA" corresponds to the specifications.
The sample "IRDA" (ex Gallarate) was not within the specifications as regards reducing sugars and saccharose contents.

- Liquorice extract (FERTILIZERS & CHEMICALS Ltd., Haifa/
Israel / yellow sheet 5926, 500 g)

The sample was within the specifications. 50 kg for an industrial trial were ordered (16/02/81).

QUALITY CONTROL OF TOBACCO INGREDIENTS

- Diethylene glycol (SIEGFRIED, Zofingen / blue sheet 8232,
2000 kg)

The analytical values were within the specifications.
However, the product was of a yellow colour and the shipment was therefore refused.

- MFSBC Powder (PMG, Munich) - Ref. 2

161 drums out of 165 of the last shipment were mislabeled:
Instead of "MFSBC Powder", the drums were labelled "MFSB
Base", together with the code number of "MF (S) Powder Base".

The contents were identified by analyses and organoleptic tests
as being "MFSBC Powder". Later, these results were confirmed
by PMI.

TRIALS WITH NEW SUPPLIES OF FILTER INGREDIENTS

- Activated charcoal (CHEMVIRON, Zürich; "UKCT" / yellow sheet 5418, 14.4t) - Ref. 3

The following test cigarettes were produced:

<u>Brand:</u>	<u>Date of evaluation:</u>	<u>Remarks:</u>
MAA (non diluted)	23.09.79	
MAA (non diluted)	01.11.79	
BRD	01.11.79	
MAA (diluted)	25.03.80	25 % CHEMVIRON and 75 % PICA normal
BRD	25.03.80	25 % CHEMVIRON and 75 % PICA normal
MAA (non diluted)	12.02.81	

Subjective evaluation: All these trials were rejected as regards taste. The 14.4 t were therefore rejected for FTR-production. Concluded on 23.02.81.

- Activated charcoal (CHEMVIRON, Zürich; "MF III" / yellow sheet 5428, 14.4 t) - Ref. 3

The following test cigarettes were produced:

<u>Brand:</u>	<u>Date of evaluation:</u>	<u>Remarks:</u>
MAA (non diluted)	01.11.79	
BRD	01.11.79	
MAA (diluted)	25.03.80	25 % CHEMVIRON and 75 % PICA normal
BRD	25.03.80	25 % CHEMVIRON and 75 % PICA normal
MAA (non diluted)	12.02.81	

Subjective evaluation: All these trials were rejected taste-wise. The 14.4 t have therefore been rejected for FTR-production. Concluded on 23.02.81.

TRIALS WITH NEW SUPPLIES OF GLUES

- Filter glue (Hot Melt) (HENKEL CHEMIE GmbH, Pratteln;
"TECHNOMELT Q 2267 Z" / yellow sheet 5870, 8 kg)

Machineability: Identical to the standard glue.

Storage: After two months no difference between this and the standard glue was observed.

Subjective evaluation (MLF-CH): The trial was preferred by the experts. However, a significant difference to the standard cigarette was found. On the basis of these results this glue will not be applied as a standard glue.

Concluded on 26.01.1981.

- Filter glue (Hot Melt) (LAESSER AG, Erlinsbach; "LESSOTHERM 2088-5" / yellow sheet 5907, 1 kg)

The Hot Melt "THÜRMER SK 1097" was used as a standard glue on normal filter paper. When porous plug wraps were introduced, sticking problems were encountered with this type of glue.

In order to use up the stock of 5.6 t, a mixture of 20 % "THÜRMER SK 1097" and 80 % "LESSOTHERM 2088" was manufactured by LAESSER.

Machineability: No significant difference to the standard glue was observed.

- Filter glue (Hot Melt) (LAESSER AG, Erlinsbach; " LESSOTHERM 2088-5" / yellow sheet 5914, 1 kg)

On the basis of the results described above a mixture of 50 % "THÜRMER SK 1097" and 50 % "LESSOTHERM 2088" was manufactured by LAESSER.

Machineability: No significant difference to the standard glue was observed.

Subjective evaluation (Panel B, MLF-CH): No significant difference to the standard.

100 kg of this glue were ordered for a more important trial (16.02.81).

- Seam glue (LAESSER AG, Erlinsbach; "LESSO 1487 x 3, PLUS PLUS"/ yellow sheet 5854, 100 kg)

This liquid starch glue is of a higher viscosity (33'000 cps instead of 17'000 cps) than the standard. An increase of viscosity should give improved flexibility for the application on different papers.

Machineability: As good as the standard glue.

Subjective evaluation (MLF-CH): The test cigarettes are not acceptable.

Nevertheless further trials with higher viscous starch glues are planned.

- Seam glue (SWIFT, Blois/France); " M 5675 AX" / yellow sheet 5910, 5 kg)

The glue is based on PVA. Special permission to use it until March 21, 1981, was granted by the German authorities. Machineability: The glue has a better adherence than the standard glue.

Subjective evaluation (MLF-CH): No significant difference was found. Acceptable.

As long as problems such as legislation on a European level, application to different papers and machines, economics, etc. are still pending, this product will not be used as a standard glue.

PRODUCT QUALITY

- DIANA (Italy) - Ref. 4

After a bad taste in DIANA-cigarettes, produced in Lecce, was found, the ingredients (diethylene glycol, sorbitol, invert sugar, cane sugar, cocoa powder, liquorice in blocks and water), the solutions (AC with the corresponding base and PC) and the glues used in the production centers of Lecce and Verona were analysed.

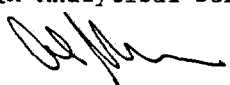
All products used in Verona were within the specifications or corresponded to the theoretical values. On the products used in Lecce, the following irregularities were found:

- cocoa powder: The fat content was too low. It corresponded to half of the value indicated in the specifications.
- Liquorice in blocks: The glycyrrhizic acid-content was far too high.
- PC-solution: Upon arrival in the laboratory, the solution was fermented. It appeared that it was not usual practice to add a conservative agent when stocking the solution for more than 24 hours.
- AC-solution: The ethanol content was significantly below the theoretical value.

SERVICES FOR OTHER GROUPS

- Analyses for NINO (Mr. N. Lüthy)
SiO₂ in 9 samples
- Analyses for MONIQUE (Mr. P. Karbacher)
SiO₂ in 4 samples

QA Analytical Services


A. Widmer

REFERENCES

1. Letter from A. Widmer to Mr. A. Trento, dd 06.02.81
2. Letter from Mr. B.W. Lutzig to A. Widmer, dd 04.11.80
Letter from A. Widmer to Mr. B.W. Lutzig, dd 28.01.81
3. Monthly report A. Widmer, November 1979
4. Letter from A. Widmer to Mr. A. Trento, dd 06.02.81

PROJECT TITLE : MATERIAL DEVELOPMENT
WRITTEN BY : E. ERKOHEN
PERIOD COVERED : January 27th - February 24th, 1981

1. TIPPING PAPER

1.1 Malaucène Micro-laser Perforated Tipping Papers "3M 0.11.6.5 and 2M 0.17"

Objective

Possible replacement of existing tipping paper on MLF-CH and MLK-CH brands with laser-type perforated tipping paper.

Summary

MLF-CH and MLK-CH cigarettes are produced with Benkert Z3/60 electro-perforated tipping paper (nominal permeability of air: 60 l/h). The perforation of the tipping paper has become visible due to deterioration of Benkert's quality. Trials have been carried out with the above mentioned papers that have a permeability of air of 66 l/h (3M 0.11.6.5) and 59 l/h (2M 0.17) to attain the same smoke deliveries as with Benkert's Z3/60. Unfortunately, the last taste evaluations made on these trials were not conclusive. New MLK-CH cigarettes with micro-laser perforated tipping papers were made and analysed.

The smoke yield results of the MLK-CH cigarettes are given in the table below:

	Malaucène 2M 0.17	Malaucène 3M 0.11.6.5	Benkert Z3/60
Date of Production	3.2.1981	3.2.1981	3.2.1981
Permeability of air l/h/4 cm	59	66	60 ⁺¹²
Dilution % US	13 ⁺²	15 ⁺²	18 ⁺²
CO mg/cig.	20.1	19.2	18.7
NO mg/cig.	0.29	0.29	0.28
TPM mg/cig.	21.9	21.5	19.9
DPM mg/cig.	19.4	19.2	17.9
SN mg/cig.	1.30	1.26	1.21
Puff count	9.9	9.5	9.8
HCN µg/cig.	239	229	212
Total Aldehydes mg/cig.	1.50	1.42	1.42

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Compared to the standard, the smoke yields for the trial are higher. Even if short-term variations are taken into consideration, a difference of 8% in TPM level cannot be tolerated. Comparing the standard to CIR values, the standard is within the limit of tolerances for the analytical values. On the basis of the results obtained, we prefer to repeat the trials before going any further.

1.2 Ecusta Micro-mechanically perforated Tipping Paper

Objective

Possible replacement of the existing tipping paper on MLF-CH and MLK-CH with micro-mechanically perforated tipping paper.

Summary

Ecusta submitted micro-mechanically perforated tipping paper. The first trial run on MLK-CH to substitute the existing Z3/60 tipping paper was negative: the dilution reached was low compared to the standard. We asked Ecusta to increase the permeability of air of the tipping paper. We recently received a sample of micro-mechanically perforated tipping paper at 60 l/h/4 cm. Trial runs were made with this tipping paper and compared to cigarettes made with Benkert Z3/60.

Smoke deliveries are summarized in the table below:

	Ecusta TOD-09306	Benkert Z3/60
Date of Production	3.2.1981	3.2.1981
Dilution % US	13 ⁺²	18 ⁺²
CO mg/cig.	19.0	18.7
NO mg/cig.	0.29	0.28
TPM mg/cig.	20.7	19.9
DPM mg/cig.	18.4	17.9
SN mg/cig.	1.25	1.21
Puff count	10.0	9.8
HCN µg/cig.	214	212
Total Aldehydes mg/cig.	1.45	1.42

Compared to the standard and CIR smoke deliveries, the trial cigarettes are within the limit of tolerances for submission for taste evaluation. We still prefer to repeat the trials and evaluate the results again before going for taste evaluation.

2. FILTER PAPER2.1 Schöller and Hoesch Fu-POV 40 mg/l and 150 mg/lObjective

Weight saving and increase of autonomy of the bobbins on the filter rod maker. -

Summary

Schöller and Hoesch developed new porous plug wraps with a substance of 20 g/m², which have properties comparable to their usual grades with a substance of 30 g/m². From a technical point of view, there is an advantage of less down-time on the filter rod maker: the Fu-POV 150 20 g/m² paper will be approximately 5000 m long compared to only 3000 m for the 30 g/m² quality, for a specified diameter of the bobbin of 580 mm. The first trials were made with Fu-POV 150 mg/l on FLLPC-100 filters for machinability tests, then FLL-CH cigarettes were made with these filters and compared to standard FLL-CH cigarettes. There was no significant difference noticed on smoke deliveries and dilution, but tastewise the trial gave less impact.

Among the variants of porous plug wraps proposed in the same series was a 40 mg/l Fu-POV. MLFPB-108 filters were made in order to be tested on MLF-CH cigarettes. These cigarettes were produced with the above-mentioned filters and compared to standard MLF-CH cigarettes. The smoke results and some important physical characteristics of the cigarettes are given in the table below:

	MLF-CH trial	MLF-CH control
Filter paper	Fu-POV 40 mg/l	Fu-POV 40
Permeability of air "K"	42.8	40 ⁺⁷
Filter dilution %"US"	15 ⁺³	17 ⁺³
Filter RTD "mm WG" (encapsulated)	55	59
Cigarette RTD "mm WG" (unencapsulated)	97 ⁺⁵	96 ⁺⁴
CO mg/cig.	16.8	16.1
NO mg/cig.	0.26	0.26
TPM mg/cig.	20.5	19.2
DPM mg/cig.	18.1	16.8
Puff count	8.9	8.9
HCN µg/cig.	213	189
Total Aldehydes mg/cig.	1.44	1.39

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0000144614

Since no significant difference was noticed, the cigarettes were submitted for taste evaluation. The results have not yet been received. We project to organize a Panel D test (mail-out test) for further evaluation.

3. CIGARETTE PAPER

Wattens E-30179 Cigarette Paper

Objective

Reduction of CO by using cigarette paper.

Summary

Wattenspapier sent us a sample bobbin which is semi-combustible and has a permeability of air of 62 Coresta. According to the supplier, this paper can influence the Carbon Monoxide delivery of a cigarette. MLK-CH cigarettes were produced and compared to standard MLK-CH cigarettes.

The smoke delivery analysis for the cigarettes with some of the important physical cigarette parameters are given in the table below:

	MLK-CH trial	MLK-CH control
Cigarette Paper	E-30179	WP-60
Permeability of air ml/min/cm ²	62	53 [±] 9
RTD of cig. "mm WG" (unencapsulated)	87	89
Filter dilution % "US"	17 [±] 2	18 [±] 2
CO mg/cig.	15.8	18.7
NO mg/cig.	0.27	0.28
TPM mg/cig.	20.3	19.9
DPM mg/cig.	18.1	17.9
SN mg/cig.	1.22	1.21
Puff count	9.8	9.8
HCN µg/cig.	177	212
Total Aldehydes mg/cig.	1.45	1.42

We noticed a substantial reduction (15%) of CO compared to the control. But comparing the CO value of the trial to the CO value in the CIR, there is no appreciable decrease. A second CO determination of the control has given the result of 15.8 mg/cig. On the basis of the contradictory results of the control, we decided to repeat the test. A final report will be established on this subject as soon as results are available.

0000144615

4. NEW FILTRATION MATERIALEastman 3.3/44.000 Y and 2.5/40.000 Y TowsObjective

2.5/40.000 Y and 3.3/44.000 Y tow evaluation. Possible replacement of existing 3.4/46.000 I by these items.

Summary

In September 1980, Eastman submitted a 3.3/44.000 Y tow similar to the type used in PM-USA. The first test run on the "capability" of this tow was not conclusive. In the meantime, PM-USA changed the lot number, so we ordered a new bale similar to the type PM-USA is now using. At the same time, Eastman proposed a 2.5/40.000 Y tow which would have the same performance as the 3.4/46.000 I from the point of smoke retention. A sample of 2.5/40.000 Y was ordered for tests.

On 23rd January 1981, trial runs on a KDF II rod maker were made without any difficulty with the tow items mentioned above. The items were evaluated on the basis of "capacity curve". The "capacity curve" of a tow is always established for a given length and diameter of filter rods by measuring the extreme RTD that can be achieved without any plasticizer application. Then the filter rods produced at the extreme points are weighed. By plotting RTD vs weight, a capacity curve is established. For the establishment of "capacity curves", 108 x 7.86 mm rods were made. The resulting curves are reported in Fig. 1. From Fig. 1 for 375 mm RTD level, an economy of 5% in cellulose acetate can be achieved by using 3.3/44.000 Y tow instead of 3.4/46.000 I tow. This economy is 15% for the tow item 2.5/40.000 Y.

Once the capacity curve was established, filter rods with plasticizer were produced. The characteristics of the filter rods made are given in the table below.

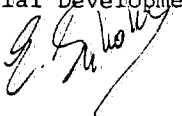
Tow item	2.5/40.000 Y	3.3/44.000 Y
Rod length "mm"	108	108
Rod ϕ "mm"	7.89 \pm 0.02	7.89 \pm 0.02
Filter Plug Wrap	Fu-POV 40	Fu-POV 40
Filter Rod RTD "mm WG"	361 \pm 13	388 \pm 12
Plasticizer %	10	10
Filter Rod Weight "mg"	768 \pm 6	856 \pm 7

In order to test the efficiencies of the filters produced, we made MLF-CH cigarettes. The smoke yield results and efficiencies are given in the table below:

Tow item	Control		
	2.5/40.000 Y	3.3/44.000 Y	3.4/46.000 I
Tobacco weight at 12% MC "mg"	790	783	772
RTD cig. "mm WG" (unencapsulated)	85	87	86
RTD filter tip "mm WG" (encapsulated)	58	61	60
Filter dilution % US	17 \pm 2	17 \pm 2	17 \pm 2
Filter efficiency %	44	43	44
CO mg/cig.	17.1	16.4	15.8
NO mg/cig.	0.27	0.25	0.24
TPM mg/cig.	19.3	19.7	19.8
DPM mg/cig.	16.9	17.3	17.5
SN mg/cig.	1.14	1.16	1.13
Puff count	9.2	9.1	8.9
HCN μ g/cig.	199	189	183
Total Aldehydes mg/cig.	1.26	1.28	1.35

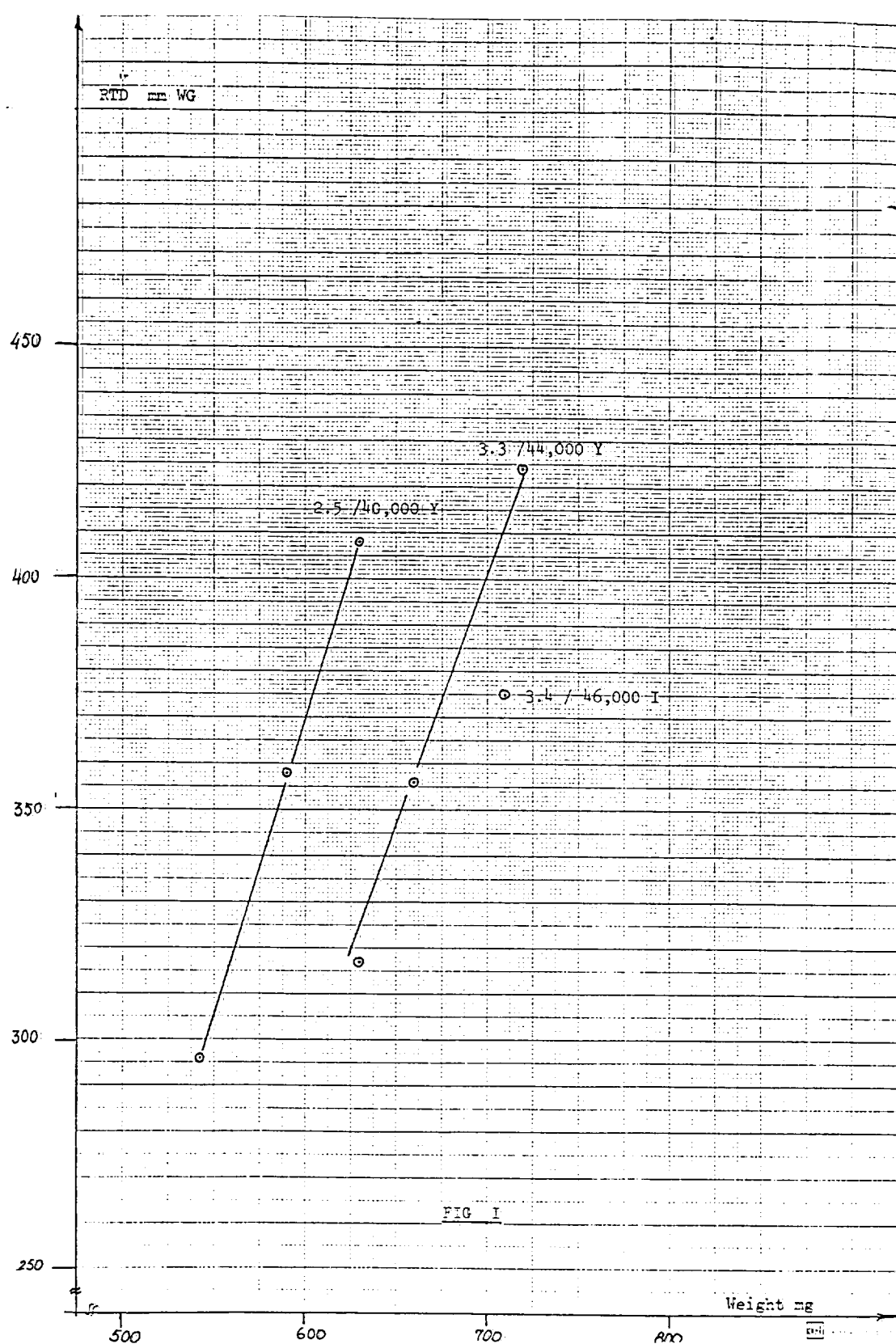
Comparing the items to the control, no significant variations of smoke deliveries can be pointed out. The cigarettes will now be submitted for taste evaluation and at the same time a Panel D test (mail-out test) will be organised.

E. Erkohen
Material Development



ELE/nod 2.3.81

0000144617



0000144618

PROJECT TITLE : SPECIFICATIONS / PROCESS ASSURANCE

Period Covered : 28.1. - 3.3. 1981

Report Written By : T. Bel - C. Flury - A.-M. Kopp

O. SPECIFICATIONS - OVERALL

1. SPECIFICATIONS PER PRODUCTION CENTER PME

1.1 FTR Neuchâtel

1.1.1 Processing:

Expanded tobacco has been introduced in several blends, as follows:

Blend	Previous ESTHER %	N E W ESTHER %	ETNA %	Cigarettes concerned
ML 022 46	7,3	5,7	2,2	MLF MLH MLK MLB MFM
MG 001 52	10,0	8,0	3,0	MER MEM
BR 001 02	7,3	5,3	2,0	ALF BRC BRF
NP 002 40	7,3	5,3	2,0	NPF
BS 007 45	2,7	2,7	2,2	BSB
PM 009 47	7,3	5,3	2,2	PMM
PM 008 48	7,3	5,3	2,2	PMK CRF CRM

1.1.2 Filter Making:

The two filters 34.1205 (BOP 0975 paper) and 34.1200 (24 L paper) have been cancelled. The 40 L filter 34.1210 is now used on all Marlboro cigarettes (dilution 13 % PME).

1.1.3 Cigarette Making:

The tobacco weights of four brands has been adapted so as to comply with the Swiss taxation limits.

The cigarette makers in Neuchâtel are being converted to produce King Size cigarettes with a total length of 84,0 instead of 84,4 mm. The first specs have been adapted.

1.1.4 Packing:

Product version MAA 052 Ambassador, for sale to Konsumex, Hungary, has been reactivated.

The products MLH 215 Marlboro 100s, MPH 215 Multifilter 100s, MLK 215 Marlboro KS, and MER 215 Merit, manufactured under contract for PMH and PMG, have been withdrawn.

Modified packing specs for brands sold on the Swiss market have been distributed: The "Warning..." text has to be larger in size and is repositioned, on some of the brands.

1.2 Intertaba S.p.A. Zola Predosa/Bologna

New filter making specs have been prepared for a 120 mm Marlboro filter, for sale to the Ivory Coast, and for a 120 mm porous combined (Ambassador) filter, for sale to ATO Finland, for their re-engineered BEM Belmont Multifilter.

1.3 PMH Eindhoven and Bergen op Zoom

Cigarette paper Wattens WP 60 (ex FTR's contract manufacture) is temporarily used on the MLFs Marlboros. PMH's normal paper quality for Marlboros is Mauduit 110-6.

Packing product versions MLF 107 Marlboro Filter and MLK 155 Marlboro King Size, both for sale in Danemark, have been replaced by MLB 050, a Marlboro King Size cigarette packed in a hinge lid pack.

1.4 PMG Munich and Berlin

Project specs for filter and cigarette making have been prepared for the intention of PMG Munich, for project Hilton 100 ref. 301.

New specs for cigarette making (MPH 09) and packing (MPH 210) for Multifilter 100s, standard export version, have been established.

A new packing spec for MLN 041 Marlboro Menthol, 3-cigarette sample, has been established.

New specs for special sales have been prepared for ONF 040 Oncy, ROA 040 Rockwell, WTT 040 Westcoast, and CRF 040 Checker.

1.5 Weltab Bruxelles

The Merit and Marlboro cigarette making specs have been adapted.

New is packing spec MER 059, for a Merit in hinge lid pack to be sold in Luxemburg.

Many updatings are pending for the manufacturing specs valid in WELTAB as well as at Jubilé, Liège, producing for WELTAB.

3. PME STANDARD RECIPES

- 3.1 The individual ingredients for "super juice" flavours have been replaced by the semi-manufactured product supplied by PMI (recipes MERA-AC, MAB-AC, and BSD-AC).
- 3.2 Several recipes have been adapted due to the preparation of certain solutions by Jubilé, Liège BE, on behalf of their WELTAB production.
- 3.3 A new recipe MF-ET-PC has been prepared for the Marlboro solution applied to expanded flue cured tobacco.

4. SPECIFICATIONS ON EDP

About 4½ working days were spent with MM. C. Cotting, EDP, and E. Grossen, QC FTR, to define the functions, tools, and information requirements on the level of the production center.

A preliminary small programme is foreseen for the computer calculation of the cigarette making specs (dimensions, weights, and AccuRay limits).

5. PROCESS ASSURANCE

5.1 AccuRay

After two months of the running industrial trial, the situation is as follows:

FTR and PMG Munich:
No problems.

PMH:
The test is not made and PMH work with the 1980 specs.
Reson: During the various trials, they have found a less good compressibility. PMH is now studying the relation between tobacco weight and compressibility.

WELTAB:
MER Merit They work at - 2,5 %.
MLF Marlboro They have worked at - 2,0 % almost the whole month. They had to modify this limit towards the end of the month due to some problems with loose ends.

5.10 New Primary Bergen oZ and Berlin (References 1 and 2)

Following the problems encountered in FTR with the pneu-

1.6 PMUK London

A new packing version has been prepared for the sale of 16s vend machine Marlboros, manufactured by Manchester Tobacco Company.

1.7 PM Nigeria, Ilorin

1.8 Licensees

- Holland:
Following the re-engineering of the L & M brands manufactured by Ed. Laurens BV The Hague (and Bruxelles), to bring down the smoking numbers, the complete specification files for processing, filter and cigarette making have been reviewed and some of the packing specs have been modified.
- Poland:
The complete specs file has been reviewed.
- Greece:
The Marlboro King Size, ex Papastratos, is now manufactured with a 20 mm filter. The filter and cigarette making specs have been modified.
Contacts have also been established by the Area Operation Manager, regarding the Greek projects (manufacture of three new brands, amongst others an Ambassador).
- DDR:
New cigarette making specs (MPH 10) and packing specs (MPH 301) have been prepared for the Nordhausen factory which is supposed to produce this brand for standard export.
- Finland:
Modified, provisional specs have been prepared for a re-engineered Belmont Multifilter BEM. It will be equipped with a porous 120 mm charcoal filter. Hauni needle dilution and a dilution of 24 % (US) are foreseen.
- Hungary:
Preliminary contacts with AOD regarding the possible manufacture of a Multifilter King Size (soft) and two 100 mm (Eve, Lark) cigarettes.

2. MATERIAL SPECIFICATIONS

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matic transport of dry stems (12-13 %), an information has been passed to the two production centers so that they should be aware of the problem.

5.13 MTI Lecce, Production of Diana (Reference 3)

The final report has been distributed.

5.14 ETNA

A model specification for flue cured tobacco, matching FTR's spec, has been send to PMG and PMH for information.

5.15 Quality Workshop (Reference 4)

The report on the PME meeting of February 17, 1981, has been distributed.

Graphs:

- Comparison between the production centers (monthly averages) for 16 main defect chosen according to the PME Finished Product report.
- Comparison between brands manufactured at the same production center, for 15 main defects (monthly averages). This has been made for PMG Munich, PMH Bergen oZ and WELTAB.

Thierry Bel

Catherine Flury

Anne-Marie Kopp

References

1. Stem line in new primary in Bergen OZ. Memo T. Bel to J. Peterse 20.2.1981
2. Stem line new primary in Berlin. Memo T. Bel to W. Hilmer 20.2.1981
3. Report on visit to Lecce. Memo T. Bel/F. Käser to A. Trento 20.2.1981
4. Quality Workshop. Minutes T. Bel to participants 23.2.1981

PROJECT TITLE : LEGISLATION
PERIOD COVERED : 24 JANUARY - 24 FEBRUARY 1980
WRITTEN BY : C. JEANNERET


EEC

Concerning the harmonisation of excise tax on tobacco, member states are not of the same opinion as regards the Commission's proposal.

Italy, the country most opposed to the proposal, has asked to submit a new one which would eliminate any specific taxation.

The UK has not withdrawn its proposal to extend the tax to other EEC countries, but, since the Commission submitted its report on the effects of the additional tax, it has not repeated it either. This report states in particular that the tax has attained its objective as now only a few cigarettes with more than 20 mg condensate are being sold in the UK.

In addition, the Commission stresses that the tax is equivalent to a prohibition of sale which is not really the objective of a tax : a prohibition should be decided upon as such. Finally British industry has entered into an agreement with the British government to no longer sell any such cigarettes. For this reason the Commission felt that it was not necessary to maintain the derogation for the UK and to extend it to other countries.


C. Jeanneret

CLJ/jud 24 February 1981

PROJECT TITLE : PATENTS
PERIOD COVERED : January / February 1981
WRITTEN BY : J.C. Mandiratta

REDUCTION OF NITRATES AND NITRITES IN TOBACCO
Cases P 28186, P 28190 and P 28202

We have been informed by the West German and the United Kingdom Patent Offices that the patents concerning the above mentioned cases have been accepted and the same will be published soon.

RENEWAL FEES

The renewal fees have been paid for the following cases in the month of January 1981 :

Luxemburg patent 82 199

Case A 28 228

Process of obtaining nitrate from nitrate containing solutions by using Procaryotic microorganisms.

Australian patent application 43472/79

Case A 28216

Reduction of nitrates and nitrites in tobacco - aerobic fermentation

French patent 2 416 654

Case A 28214

Same as above.

Belgium patent 874 050

Case P 28212

Same as above.

The Netherlands patent application 7 900 761

Case A 28211

Same as above.

Swiss patent application 592/79

Case A 28210

Same as above.

West German patent Application P 2 901 310

Case P 28209

Same as above.

Luxemburg patent 79039

Case A 28196

In spite of the fact that it was decided in one of our preceeding PME Patent Committee meetings to abandon this patent, the renewal fee for 1981 has been paid. (Ref.: Inter Office memo to Dr. Gaisch, dated December 3, 1980.)

RENEWAL FEES cont'd

Swiss patent application 3426/79

Case A 28187

Reduction of nitrates and nitrites in tobacco - anaerobic fermentation.

West German Offenlegungsschrift 2 811 690

Case P 28186

Same as above.

United Kingdom patent 1 413 177

Case P 28070

Process for the manufacture of regenerated tobacco.

Bulgarian patent 26 801

Case P 28065

Same as above.

United Kingdom patent 1 412 078

Case P 28062

Same as above.

Swiss patent 574 717

Case P 28059

Same as above.

West German patent 2 307 884

Case P 28058

Same as above.

French patent 7 207 806

Case P 28012

Method for processing low wood content non-tobacco plant material into tobacco substitute.

United Kingdom patent 1 331 914

Case P 28006

Same as above.

Swiss patent 560 022

Case P 28005

Same as above.

West German patent 2 210 255

Case P 28002

Same as above.

NEW PATENT FILINGS

Case A 28234

Improvements on a Gschromatograph Mass Spectrometer.

Case A 28239

Tobacco with reduced protein content.

Case P 28237

Machine for extracting liquid from cut tobacco.

Case A 28244

Device for stamping channels on the cigarette filter periphery.

Case A 28243

Filter with air channels.

Case A 28247

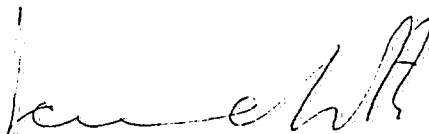
Filter tipping paper with grooves.

MISCELLANEOUS

The PME Patent Committee meeting, scheduled to be held on February 11, 1981, was cancelled and instead a meeting was held on February 6, 1981 in Neuchâtel mainly dealing with project EXIT.

PATENT DOCUMENTATION

Todate, 6300 documents are on Stairs system for patent documentation.



J.C. Mandiratta

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PROJECT TITLE : INSTRUMENTATION AND PROCESS AUTOMATION
WRITTEN BY : M. THEVOZ
PERIOD COVERED : FEBRUARY 1981

1. Nitrate Monitoring

The process controller developed for this project has been transferred to a bench scale laboratory fermentor in order to carry out a more extended evaluation of the sugar dispensing modes.

The software has been updated to suit the graphic screen's format. The intermediate report issued every hour and day of the experiment has been improved in terms of readability.

The Hamilton dispenser, performing extract dilution in our system, was slightly modified. An electric signal now enables an independent control of each syringe. The dead volume, inside the valve, and the different tubing which carries the tobacco extract, could in this way be correctly flushed before sampling.

The magnetic steerer is also computer-controlled and is only switched on after complete filling of the reactor which contains the different sensors. In this way air bubbles entrapped on the active surface of the NO_3^- electrode may be removed.

2. CO-NO Smoking Laboratory

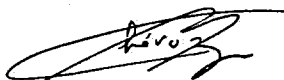
The two work places for gas phase analyses are now connected to the same desk top computer (HP 9825A). The calculator receives data from the CO and NO meters as required by the two smoking machines. The different sets of programme, written in HPL language which is similar to BASIC, perform the following controls :

- Simultaneous data acquisition on the two CO-NO instruments which work asynchronously.
- Puff by puff integration of data during the smoking cycle.
- Automatic linearisation of CO results according to a pre-computed parabolic regression curve ($Y(\%CO) = ax^2 + bx + c$ with $x = \text{mV. from the IR detector}$).
- Automatic print out of results stating the exact number of puffs ($\pm 1/10$) and CO-NO expressed in mg/cigarette.
- Daily statistics of the standard cigarette known as the monitor (mean; standard deviation; variation coefficient %; CO-NO in mg/puff and mg/cigarette).

- 7
- Automatic off-range detection of the CO-NO results of the monitor (detection resulting from a comparison between the current value and a pre-defined and memorized confidence interval).
 - Deletion of the results of the last trial of the monitor.
 - Functional testing of communication interfaces connected to instruments and calculator.
 - Optional print-out of intermediary results (number of readings, integral, puff counter, factor analyses) or set-point value (temperature, pressure, linearisation parameters, confidence interval for the monitor).

The hardware and software both work satisfactorily. Great care must be taken in the re-calibration of CO meters. The gas phase now comes directly into contact with the infra-red cell at the output of the smoking machine. The condensate deposited on the optical parts produces slight drifts in the response.

In addition, a new disposable plastic capillary for the NO meter is now being tested. This special PTFE tubing will mean that a tedious and time consuming cleaning procedure will no longer have to be carried out.



M. Thévoz

MIT/jud 24 February 1981